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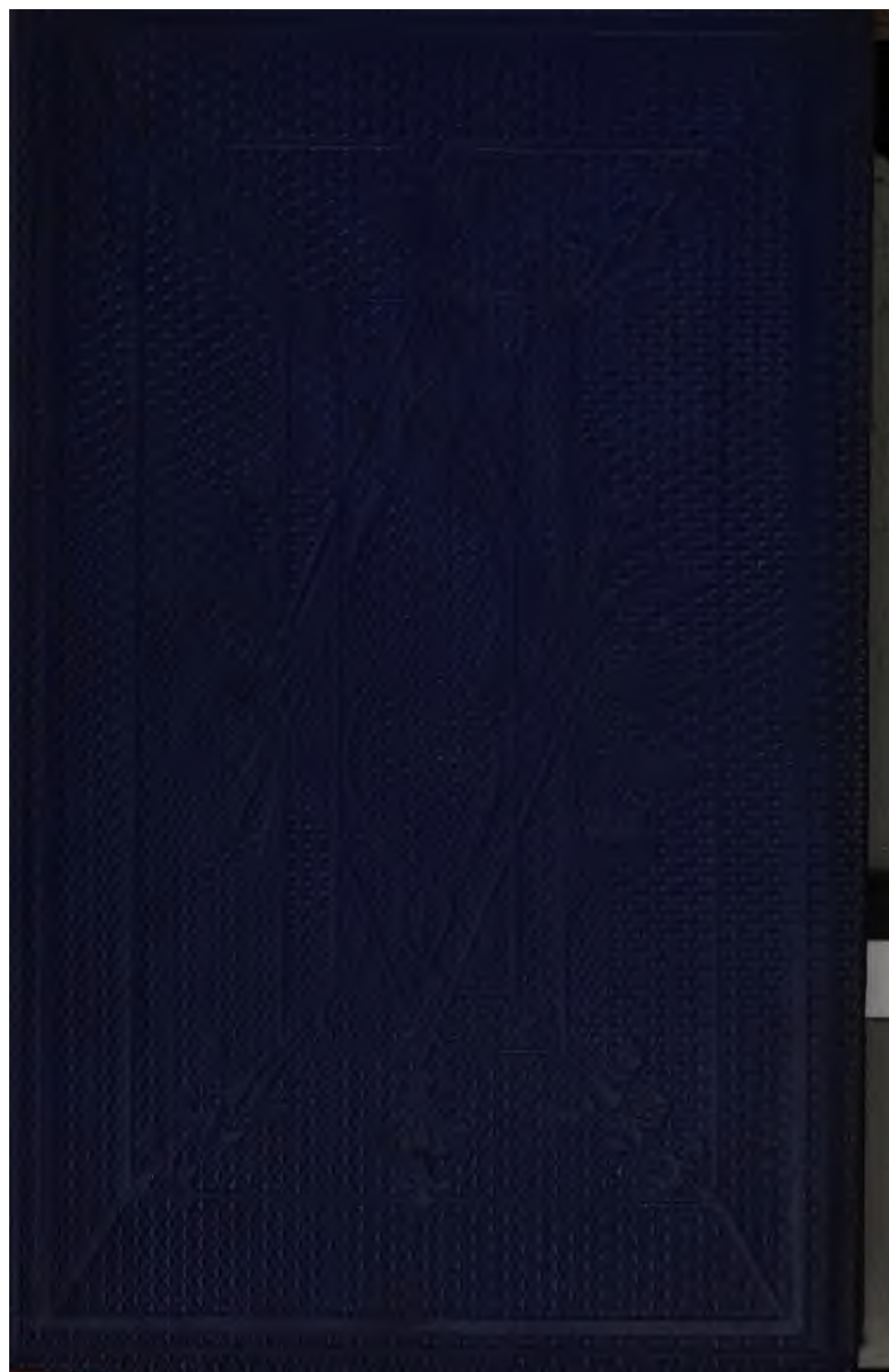
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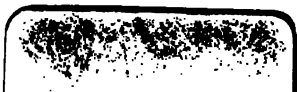
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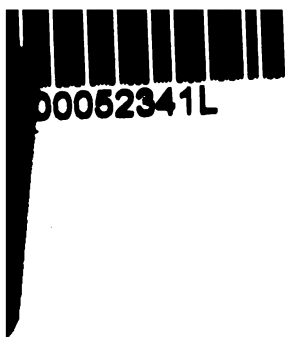




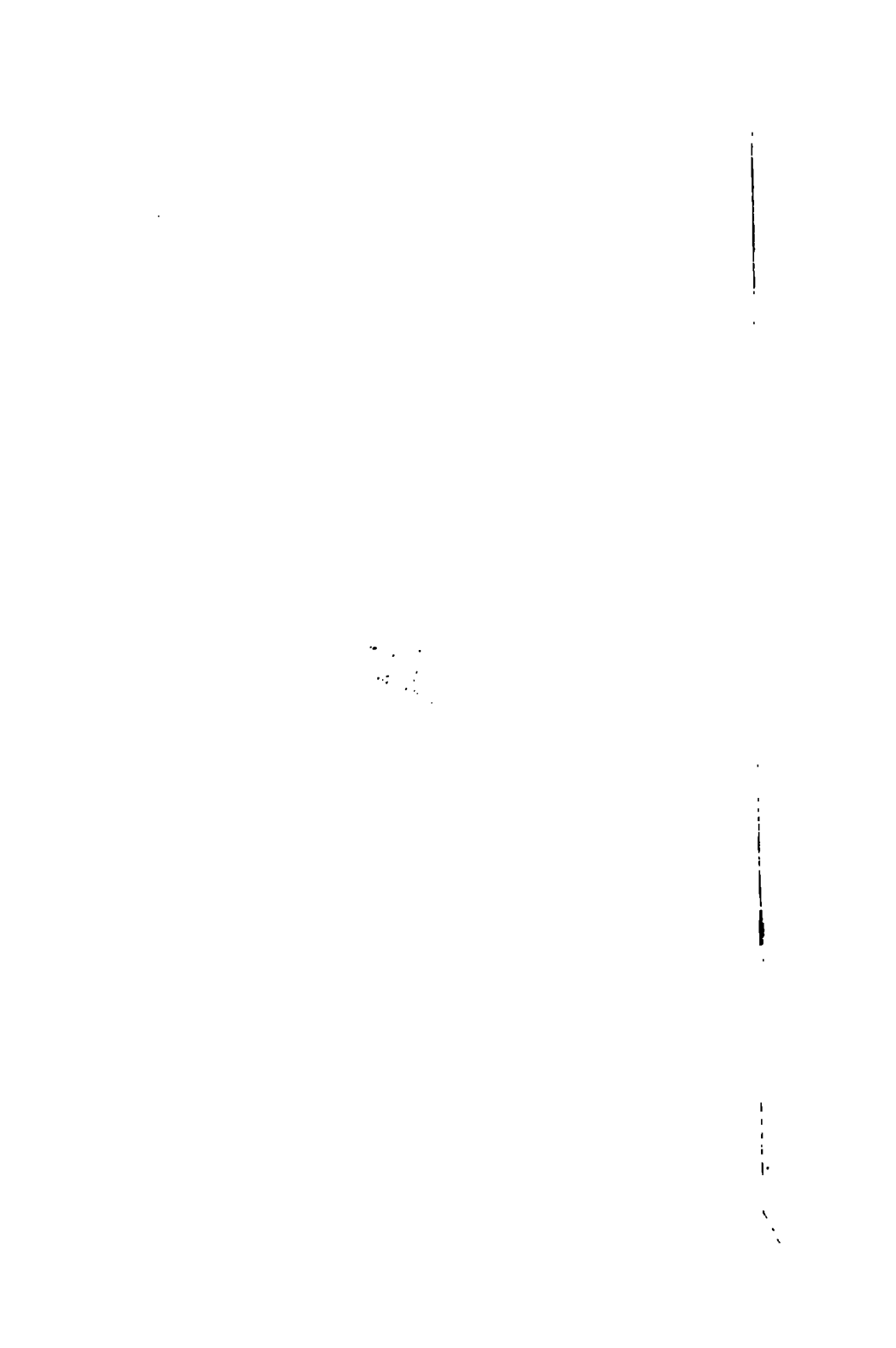
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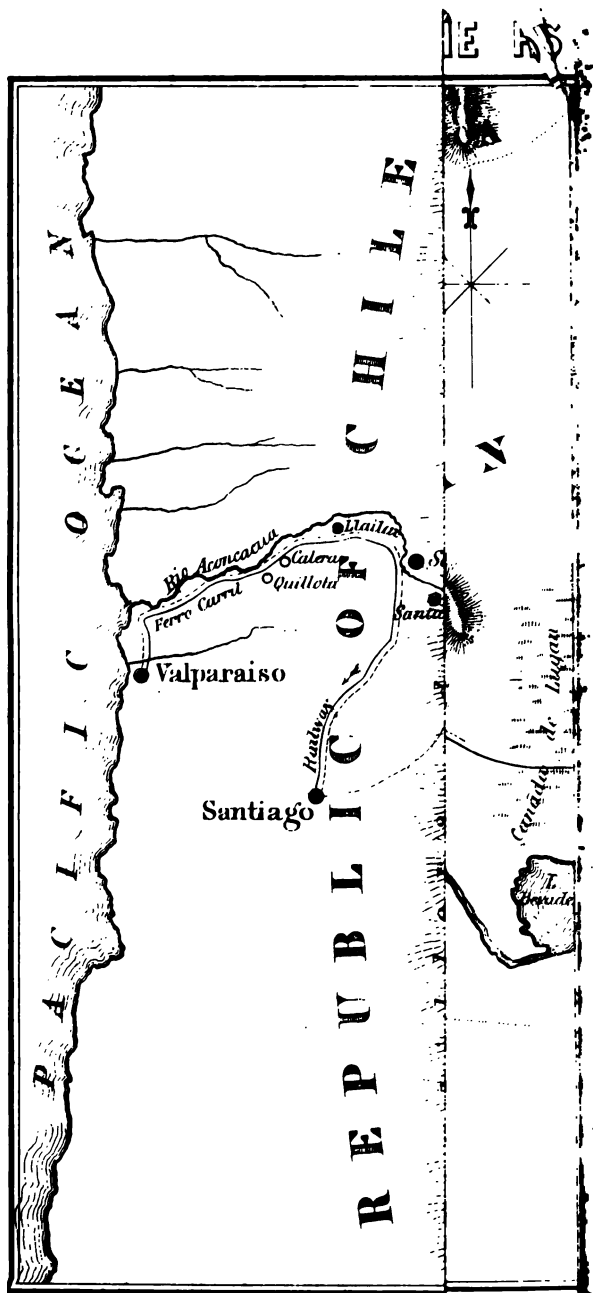
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Major F. I. Rickard, F. R. G. S. & Co. Pease.

A  
**MINING JOURNEY**

ACROSS  
**THE GREAT ANDES;**

WITH EXPLORATIONS IN THE SILVER MINING DISTRICTS OF THE  
PROVINCES OF SAN JUAN AND MENDOZA. AND A JOURNEY  
ACROSS THE PAMPAS TO BUENOS AYRES.

BY  
**MAJOR F. IGNACIO RICKARD,**  
F.G.S., F.R.G.S., CORR. MEM. ANTHROP. SOC., ETC.,  
GOVERNMENT INSPECTOR-GENERAL OF MINES, ARGENTINE REPUBLIC.



"Where Andes, giant of the western star,  
With meteor-standard to the winds unfurled,  
Looks from his throne of clouds o'er half the world!"  
CAMPBELL.

WITH TWO MAPS.

LONDON:  
SMITH, ELDER & CO., 65, CORNHILL.

M.DCCC.LXIII.

203. c. 65.  
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2

# A MINING JOURNEY

## ACROSS THE GREAT ANDES,

ETC. ETC.

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### CHAPTER I.

Author's Appointment—Preparations for the Journey—Provisions—Outfit—The Poncho—Bedding—Tea—Preserved Soups—Riding Gear—Rifle—Valparaiso—Parting Hospitality—A Hacienda—The Plantation—Soil and Produce—Threshing Corn—Horses—Wine Vats—Valparaiso Railway.

BEING at Valparaiso, in Chili, in the month of April, 1862, with the intention of returning to Europe, after an absence of nearly six years, I unexpectedly received a most flattering offer from the Government of the Argentine Republic to proceed to that country with the official appointment of Inspector-General of Mines. My duties were to examine and

explore the then newly discovered silver mining district in the province of San Juan—of which more hereafter—and to advise as to the best means of developing the mineral wealth and other resources of that extensive Republic. I accepted the offer, and at once set to work to arrange my scientific apparatus and personal luggage for the journey, as the season for crossing the Cordillera of the Andes was then fast coming to a close.

It may here be well to say a few words about my preparations for this journey, as my experience may be useful to others who may follow this route. It should be borne in mind, that the greater part of the journey has to be done on mules, and that the road in some places is very precipitous and narrow: boxes or trunks must be used for packing baggage, and these should be about 2 feet 6 inches to 3 feet long, 18 inches deep, and 18 inches wide; each one should be securely bound with strong iron hooping, and should have an outer covering of oilcloth, or some waterproof stuff.

The weight of each box should not exceed 150 lbs., as two of such form a mule load, or *carga*.

The provisions, &c., for the road may be taken in a box, provided with a lock; and I would recommend the entrusting of this department to the muleteer, or *arriero*. He will procure for you proper quantities of excellent meat, potatoes, onions, bread, salt, "charqui," or jerked beef, rice, and "graza," which cost a few silver dollars. For one's own personal comfort, I would recommend a supply of good tea or coffee, and sugar, with two or three bottles of good port wine: this last is the only liquor that can be recommended as an antidote against the effects of the extreme cold to be encountered in the greater elevations of the Cordillera. Cognac is most injurious, and should never be taken at great altitudes, especially in the Andes.

I must also call the attention of intending travellers to the necessity of a suitable outfit in the way of clothing. Should it happen that

he crosses the Andes during the month of April, or at the beginning of May (which latter is the latest possible date I would attempt the passage, except under extraordinarily favourable circumstances, such as a fine late season, &c.), I would recommend the warmest and coarsest clothing possible. The following articles of under clothing are indispensable :—

Two or three Crimean shirts, two pair of warm woollen drawers and woollen stockings. The outer costume should consist of tight riding-trowsers, with large shooting boots (waterproof) to come up above the knees ; a couple of coarse Garibaldian shirts with pockets on the breast of the outer one, buckled in by a belt round the waist, in which may be stuck revolvers and bowie-knives *ad libitum* (though these may be left out altogether, as there is scarcely an instance of their being required to be used defensively) ; travelling cap of fur or other warm stuff, with lappets to come down over the ears and tie beneath the chin ; warm muffler, and pair of green

or blue goggles to protect the eyes from the glare of sunlight reflected from the snow ; two warm ponchos, and a light one.

The poncho is a garment made by the natives in almost every part of the Republics of Chili, Peru, Bolivia, and the Argentine Confederation. The heavy ones are nothing more than a coarse woollen blanket with a slit in the centre sufficiently large to pass the head through ; and I assure the reader that it is a most comfortable and convenient garment for equestrian expeditions in South America, as it serves to keep off dust and rain during the day, and forms an excellent blanket at night. The lighter one is a cool and agreeable, not to say graceful, garment for warm weather, and far preferable to any English or European riding costume of the present day.

One's sleeping accommodation forms a most important subject for consideration in crossing the Andes, as after a hard day's journey, toiling up steep ascents, mounting and alighting

frequently from your mule, it is necessary to enjoy a good night's sleep, that you may rise refreshed and strengthened to commence anew the labours of the day. A light portable camp bedstead, with thin hair mattress, will be found most suitable; and an air pillow would be very convenient. And, in addition to any number of blankets, &c., to suit the traveller's requirements, I would recommend a large Indian-rubber sheet to wrap the bed and bedding in during the day, and serve as a waterproof cover at night in case of rain. I need scarcely observe that a supply of candles and wax matches is essential.

The reader must bear in mind that the clothing here recommended is intended for the late or very early seasons of passing the Andes. For the summer season the outfit must be different, and the traveller should recollect that he will have to sleep in the open air, and that the heat during the day is as great as the cold is at night. Consequently, a single shirt, with a light poncho to keep off the sun, may

be used from about eleven o'clock A.M. to four P.M., when it becomes almost necessary to don a heavy poncho and muffle oneself up. The early morning is also pretty cold, and a cup of warm strong tea, or the more generally used *maté*, is not only very agreeable but to be highly recommended as a stirrup cup.

I would recommend the traveller to take a large bottle of cold tea (strong) from the starting-place; as when required it is easily warmed, and forms a most refreshing drink. The bottle may be replenished every night at the camping-ground, and so be ready for the following day.

The usual routine of the day's journey connected with the refreshment department is generally as follows. Previous to starting, a cup of tea, or *maté*. About ten to eleven o'clock (according to the facilities of finding water), there is generally a halt made to refresh and have some breakfast; but the time thus expended should be as short as possible, and therefore something already cooked, such as



preserved soup, or cold meat, with biscuit or bread, forms the usual meal. I recommend very strongly the preserved soups, but not preserved meats, as they are very indigestible, and highly dangerous in the higher regions of the Andes. In the way of cooking utensils the muleteer usually provides a moderate sized pot with three long legs, and a small kettle to boil water ; but I would recommend a compact set of cooking utensils of one's own, with knife, fork, spoon, &c. The dinner-hour is almost always deferred until the final halt for the night ; therefore, I would recommend a little something convenient in the pocket, such as a biscuit or sweet chocolate, to pick at during the day. The dinner usually consists of broth, with boiled meat and potatoes, onions, &c., winding up (or rather, commencing, as is the South American fashion) with the "asado," or roast beef.

I carried with me an excellent photographic apparatus, carefully packed and arranged, intending to take views on the route—some of

which I had been told were magnificent, and as my instrument took landscapes ten inches by twelve, I was in great hopes of making a very fine addition to my album. My hopes were, however, doomed to be blighted: but of this misadventure I will speak in its proper place.

My riding gear had been well looked to by my saddler. My journey saddle I had arranged with any number of rings and straps for carrying a *lazo*, and odds and ends for personal use on the road; it also had a small pad attached behind on which to rest my rifle—an Enfield, well fitted up with hair trigger, &c.—for I had promised myself good sport in the Cordillera, amongst the Huanacos and Pumas (lions). I also took my double gun in case of meeting with winged game; but this I am sorry to say proved just as great a failure as my photography.

Having made all ready for the journey, I secured my seat in the railway train at Valparaíso.

I will not fatigue the reader by describing Valparaiso, it having been already done by others; but I may observe that it is perhaps the first commercial town on the west-coast of South America, and contains from 70,000 to 80,000 inhabitants, some 16,000 of which are foreigners. Englishmen may be interested in knowing that several genuinely British institutions exist there; for instance, a pack of fox hounds (G. Garland, Esquire, master), a cricket club, boat club, social club, and an English amateur theatrical club, with others of minor importance.

I started from Valparaiso on the 23rd April, 1862, per three o'clock P.M. train for Quillota, a small town about thirty-five miles to the N.E., situated on the line of railroad in course of construction between Santiago, the capital, and Valparaiso, and containing a population of 10,000 or 12,000 souls. The train arrived there about five P.M., and having secured a birlocho, or two-horse covered gig, I proceeded to the Calera, about seven miles further on in the

same direction. Here I put up in comfortable quarters for the night at the house, or hacienda, of a much appreciated friend, Don Ildefonso Huici, a Bolivian gentleman, whose family I have known for some years, and whose hospitality to foreigners is proverbial in Valparaiso. Here I passed a very pleasant evening, and to my agreeable surprise found my friend, the agent of the Argentine Government, Don M. de S——, awaiting my arrival, to accompany me towards the Cordillera.

Some fair Señoritas whiled away the evening very pleasantly by playing and singing to us some pretty Spanish airs, whose soothing and agreeable tones served in a great measure to allay the sadness I felt at parting with some very old and tried “compañeros” in Valparaiso. I retired at a late hour to my room, but not to sleep, for remembrances of the kind friends I had left behind were uppermost in my mind. I had, indeed, some reason to be sad, for such a set of jolly good fellows as I had lived amongst at the old Bachelors’ Hall

in Valparaiso are rarely to be met with ; and then the thought that one is about to be isolated almost from civilization for an indefinite term of years, and to be buried in the interior of a country where not half a dozen British subjects are to be found, was depressing. I had for some three or four years been enjoying at Valparaiso nearly all the British sports, such as fox-hunting, partridge shooting, boating, cricketing, horse racing, amateur theatricals, &c., and the companionship of friends, and only now fully appreciated the blessings and advantages of civilized life.

I was awoke before sunrise the next morning by Don Lorenzo, the son of my kind host, informing me that the mules were in the *corral*, or cattle-yard, and their driver awaiting my orders to load my luggage. Our immediate destination was Santa Rosa de los Andes, the rendezvous from which all travellers start for the Cordillera on the Chilian side ; at least those intending to go over by the Uspallata, or La Cumbre pass. I found my

servant (a negro) astir and arranging the various packages, &c., in groups of the size and weight necessary for each mule load, and in the course of an hour had the satisfaction of seeing my "equipaje" fairly on the march; I myself intending to follow per coach.

As it was still very early, and none of the ladies were astir, I took the opportunity of going over the farmyard, and the various other departments of the estate or hacienda; and the reader may like to accompany us in idea. Our young friend, Don Lorenzo, will be our "guia," and explain to us how such an extensive concern is conducted; but although he speaks English tolerably well, he cannot explain to us so clearly as in his native tongue the minutiae of a Chilian hacienda. I will, therefore, try to Anglicize the quaint Spanish expressions and technicalities used to convey an idea of the operations upon an agricultural estate in South America.

The Calera estate is not very large, but

being situate on the line of railroad to Valparaiso, is most valuable, producing an income to its owner of some 17,000 dols. (3,400*l.*) annually. It may be considered as a model hacienda, for on it may be found nearly every product of the country. We will begin at the dwelling-house, a portion of which is modern, and of two stories; the larger part is, however, in the old Spanish style, long, low, tiled roof, with corridor and pillars, which forms a cool promenade in the summer and a dry one in the winter. The interior is elegantly, almost luxuriously furnished, and the style of living and table is not surpassed, nor, perhaps, equalled, by many noblemen's houses in England. There are two courtyards, properly belonging to the house—the outer one nicely planted with trees, and the inner one a pleasant flower-garden; then at the rear there is an extensive orchard, where some of the most delicious tropical fruits are cultivated, or rather had been at one time, but now are growing in wild luxuriance, producing as much,

but perhaps of an inferior quality to formerly. Here you find the banana, the cherimoya, the date, the orange, lemon, peach, &c., together with the ordinary English fruit of all classes. Passing through the fruit-garden, you come into a magnificent plantation of almond trees, or "el almendral," which produces an immense quantity of fruit of first quality, and which sell well in Valparaiso market.

The plantation occupies at least ten acres. After passing through which, you enter upon a large plantation of walnut trees, which also produce a fair income; but the grand produce of the hacienda is the grape and wines made therefrom. The vineyards are numerous and extensive, covering more than thirty acres, and the quantity produced annually is enormous. There are two classes of grapes on the estate, the green or white grape, and the red or black; the former produce a white wine of excellent quality, and are suitable for table use in season; the latter are almost exclusively used to make wine, and are seldom produced



at table, although a most agreeable and delicious fruit.

We now pass into the fields, or “potreros,” and find wheat, barley, potatoes, beans, hay, &c., growing most luxuriantly; the soil is extremely rich, and never requires manure, producing green and other crops year after year without any other fertilizer than the waters of the Aconcagua river which flow down from the Cordillera, highly charged with potash and other fertilizing salts. Artificial canals are made from this river, and the water brought through the land for the use of the cattle, and for irrigating in summer, when it never rains in this part of Chili. We observed some very fine cattle and sheep; the latter of the Southdown breed, and in excellent order. They were imported by Mr. Garland, of Valparaiso, some years since, and the breed being carefully propagated, has become very extensive. The fields where the cattle are kept are fenced round with poplar trees, which have grown to a height of fifty or sixty feet, and are

so close together that they form an impenetrable barrier, and an excellent shade for the cattle in hot weather.

In one of these fields, may be seen the "aria," or a circular enclosure of stakes, within which is thrown the recently shorn corn in the harvest season. You would scarcely imagine that this is the usual barn, or threshing-ground, of the Chilian farmer; here no busy flail is plied, nor is used the snorting "steam-horse" with his iron teeth to shell the corn: all is done by nature's own elements, and some fifty to a hundred young mares and horses are turned in with two or three mounted youngsters to drive them round and round from morning till night, until all the heap of straw and corn becomes blended in one confused mass, and the former trodden almost into dust. The pile is now cleared, and the corn separated by a number of men with a species of wooden fork, who continue stirring up and flinging the mixed mass into the air, when the wind carries off the straw and chaff,

leaving the heavier grain in a separate and well-cleaned heap at their feet. Making a circuit of about half a mile, we again approach the house and enter the farmyard, around which are arranged the offices and stables for horses; these are the only animals to which such a luxury is extended in Chili, and only among some of the landed proprietors is even this care taken: for except in the cities, never does the brush or currycomb touch this noble animal, and then only when the horse is owned by a European; the consequence is, that you seldom find a well-groomed horse in South America.

Here there are extensive "bodegas," or storehouses, for making and keeping the wine. We counted some thirty enormous vats nearly all full of different vintages. We tried a sample of some four-year-old white wine, which I considered equal to any Sauterne or Rhenish wine to be found in Europe: at all events, it acted as a capital tonic, and, together with our walk, gave us a most ferocious appetite

for breakfast. Happily it was now the hour, and on entering the inner courtyard the tingle of the breakfast bell greeted us, and the various members of the family gave us the usual morning salutation of *Buenos dias, y como le ha pasado V. la noche*. After which we attacked the viands with a hearty good-will, and passed a most agreeable hour; the last which I had the pleasure of spending in the society of that hospitable family.

Immediately after breakfast I said farewell to my kind host and his family, and set out for the railway station, close to which the coach starts for San Felipe. I was accompanied by my young friends Don Jose, and Lorenzo, and Don M—— de S——, and followed by my faithful dog, "Grouse," a fine young setter and retriever I had trained with great care, and which I have since found a most useful and faithful companion on the many journeys and exploring expeditions I have made in the interior provinces of the Argentine Republic.

## CHAPTER II.

*Santiago and Valparaiso Railway—Scenery—Coach-road—  
Views of the Cordillera—Copper Mines of Catemo—  
Their Produce—San Felipe—Products of the Province—  
A Pleasant Shooting Party—A Sensitive Cockney—  
Rough Sleeping-places.*

THE Calera Station on the Santiago and Valparaiso Railway is close to the house of Señor Huici, and from it started daily a coach to San Felipe de Aconcagua, a considerable town on the route to the Andes, and distant from Calera about forty-five miles. We secured our places, and were about to start, when an engine with ballast-waggons came up, and as the line of rail (then unfinished) passes close to San Felipe, we considered it might be more pleasant to go by it than coach. On speaking with the conductor in charge we got permis-

sion, and jumped up, making ourselves as comfortable as possible among logs of timber and other material going to the workings on the line.

By this date (1863) the line of road ought to be complete to Santiago, the capital, a distance of some 140 miles per this route from Valparaiso, so that the traveller can jump in at that city and be taken the greater part of the way towards the Andes, without the trouble of transferring twice or thrice to coaches and other conveyances.

The scenery along the line from the Calera to Llaillai (the point at which the coach road branches off towards San Felipe) is really beautiful, and highly interesting; winding along the edges of the mountains (in some parts pretty high), and following the course of the turbid river of Aconcagua, which flows down from the Andes with tremendous force and rapidity.

By the coach road it is necessary to ford this river several times, and in the beginning of

summer and during the rainy season the stream is highly dangerous, and swollen to such a height that the coach cannot pass ; consequently carriage traffic in those seasons is stopped. I once saw a bullock-waggon and eight bullocks capsized and carried down the stream, rolling over and over, until eventually coming to a bend, it stuck on the bank ; three only out of the eight escaped, the driver with the remainder having perished. From this it may be conceived what engineering difficulties must present themselves in building bridges, and constructing the line of railroad along this river. The engineer wisely determined not to try the former, and has consequently to follow the tortuous course of the river, winding and curving almost every half-mile, until at Llaillai it breaks off at an angle, and the road enters a deep gorge between high ranges of mountains, through which a tunnel is being made to join the already finished section on the Santiago side.

From a point called Ocoa, about half-way

between Calera and Llaillai, the traveller gets a most magnificent view of the Cordillera of the Andes, the extinct volcano of Aconcagua towering above the whole range with its perpetually snow-capped peak, and crater-like summit, measuring 23,290 feet above the level of the sea, being the second highest mountain in South America. At this point the coach road passes through a beautiful avenue of Italian poplars from 60 to 70 feet in height, at least five miles long and perfectly straight. This is called in Spanish "Alameda," from the word "Alamo" (poplar), and is almost the only abundant tree of any size to be found in those districts of Chili.

Whilst enjoying this delightful scenery we are still upon the ballast-train, and steaming along slowly over the newly-made temporary track. In the course of a few hours we arrived at the intended station of Llaillai, which is picturesquely situated at the base of a range of hills, dividing the valley of Aconcagua from that of Quillota, through which we have just



passed. There was a clean-looking post-house, where we found the coach awaiting us to proceed on our journey to San Felipe.

Having said farewell to my companions, who returned on horseback, I once more took the road. We started at a full gallop with five horses abreast, in the French style, and only pulled up on commencing to ascend the "Cuesta," or zigzag road across the mountain. The view from the top of this range of hills is really very fine: the fertile and well-cultivated valley of Aconcagua, with its winding river in the centre, and the picturesque mountain of Catemo in the distance, stretching away towards the Cordillera as far as the eye can reach, forms a delightful *coup d'œil*: from the plains beneath may be seen the blue smoke of the copper-smelting furnaces ascending curling into the air and mixing with the low clouds of mist which are almost always to be seen hovering about the summit of those mountain ranges.

In Catemo, directly in front, there are many

valuable copper mines being worked, and the ores brought down to the plains are smelted at the establishments of the Messrs. Huidaubros and Mr. Müller, producing a large quantity of bar copper annually. The smelting is done by wood in furnaces of the reverberatory class, but of small dimensions. Each furnace smelts generally two charges in the twelve hours of  $1\frac{1}{2}$  ton each charge, and produces a regulus containing about 35 per cent. copper, the average ley of the crude ore smelted being 11 to 13 per cent.; by the second firing the regulus is brought up from 45 to 50 per cent. copper, and is sometimes sent into the Valparaiso market in that state. To produce bar copper of 98 to 99 per cent., they generally give four firings, but the ley seldom exceeds this figure, consequently the price obtained for Chilian bar copper in Europe is always less than for English. The cost of reducing to bar copper in Catemo is calculated at about  $5\frac{1}{2}$  dollars the ton of crude ore of 12 per cent. In the whole of the mountain range which extends from

the houses are mostly in the old Spanish style, low, with tiled roofs, and courtyards. There are a number of day schools well conducted, and a sort of lyceum or preparatory college, in which are taught mathematics, drawing, classics, &c.

The population is about 12,000, of whom very few are foreigners ; it is the capital of the province, and the "Intendente," or Governor, resides there. The river of Aconcagua passes close to the town, and serves to irrigate the rich alluvial soil for many leagues around. The products of the province are grain, potatoes, walnuts, figs, melons, beans, grapes, wines, peaches, tobacco, and maize. The mineral wealth is very considerable, including large quantities of copper, and a little silver, all of which is sent into the Valparaiso market. It is considered the most fertile and richest province of Chili, and when the railway will have been complete must be one of the most agreeable, and cheapest for living in the whole Republic. The town of San Felipe is distant

some eighty-five miles from Valparaiso, and about forty-eight to fifty from Santiago.

Before taking leave of this, my favourite province in Chili, I must allude to the sport to be obtained there. For three years consecutively I have gone there from Valparaiso, accompanied by a number of jolly fellows, and, when opportunity offered, as many "naval" friends as could well get away from their ships. The partridge shooting is perhaps the best in South America, and I prefer it to any to be had even in England; the birds are very numerous and lie well, and only rise one by one, giving the sportsman time and opportunity to make every shot tell; the ground is first-rate, generally stubble, dotted with small brush-wood, and forming excellent cover.

In the year 1861, a large party of us started from Valparaiso for St. Felipe, amongst whom were Lieutenant the Honourable H—— L——, H.M.S. T——e, J. W. G—— and B. A. M—— of Valparaiso. We took up our quarters at a "rancho," or mud hut, about eight miles

from the town of San Felipe, towards the Cordillera, and remained two days blazing away to our heart's content. In the evenings we enjoyed the society of some agreeable Señoritas; but I had better not describe the ladies, as I fear the romance of the affair would be altogether destroyed: suffice it to say, that they were *young* and agreeable, but as their *colour* and *descent* were points of doubt among us, I will not venture to decide as to their peculiar *hue* or lineage.

Just now as I write these lines, some thousands of miles from there, I fancy I can hear the never-to-be-forgotten laugh, or rather roar, of my friend G——, which was a continuous peal from the time we entered the rancho until we decamped: for my part I know I was highly amused at the ludicrous scenes I witnessed there, such as dancing the national “baile” of “*La Zamacueca*,” &c. In one corner of the miserable little hut might be seen my “honourable” friend making love and swearing eternal constancy to one of the rustic

beauties—in English of course—which, not being understood by the lady, did not seem to affect her much; in another corner might be seen G——, with an enormous copper preserving-pan full of steaming punch, serving it out with a “cacho,” or piece of cow’s-horn; his polite attentions to the fair sex, and his gigantic figure when dancing (trying to find head room in the miserable hut), together with his wild halloos, and the genuine brogue with which he came out—even in Spanish—could not for a moment leave any doubt as to his nationality.

Our stoical friend M—— no doubt enjoyed himself also, but we could not induce him to display “*the light fantastic toe*,” and he remained perched on a bed enjoying his inseparable black cutty, gazing through his eye-glass on the scene of revelry as serious as a judge. When asked how he liked the “spree,” I recollect him removing his glass and replying, “’Pon my honour ’tis perfectly disgusting;” upon which he retired to seek for some sort of shake-

down in the out offices of the establishment. Poor fellow, at that time he could not appreciate those things, being a new hand and just arrived: no doubt his sensitive cockney feelings were shocked at "punch in a pot with a horn tankard."

But the most ridiculous scene was that on retiring to our respective couches, or rather finding them. There were eight of us in all, and we were told that two mattresses were at our disposal stretched on the floor of an out-house; towards this we groped our way in the dark, and of course every one made a rush for the beds. After a considerable scramble, order was restored, and the result was that six of us were in possession of the mattresses, and two still remained to be accommodated. Our honourable friend fortunately had an air bed, which he commenced inflating, and soon got into a serviceable condition; but the next question was a space to extend it in, the hut being about ten feet square. Our mattresses were stretched in the centre, and at one end a


pile of potatoes occupied a considerable space, while a quantity of maize and two immense jars, about four feet high, occupied a fair share of room at the other. L—— having surveyed the premises, determined on securing possession of the pile of potatoes, as presenting a more even surface than the jars, and forthwith extended thereon his bed, and no doubt slept sound enough till morning. The remaining individual (a Scotchman) had no other choice than to stow himself away amongst the maize and jars, or suffer a thorough freezing if he slept outside.

I shall never forget the appearance the interior of that little hut presented at daylight on the following morning. The six individuals piled almost on the top of each other on the floor, whilst the air mattress, having managed to slip away quietly from beneath its possessor, left him embracing the “Hibernianites,” and served us as a counterpane. Our friend of the jars presented the most amusing appearance of any: I suppose he had simply



sat down on the top of one of them during the night and had slept, during which he slid gradually backwards and eventually tumbled in altogether. How he slept so I know not, but I must say the position was not a very agreeable one, nor suited to persons of an apoplectic tendency, for the heels of the individual were the only parts visible in the morning, when we woke him up rather astonished at the feat he had performed.

We all turned out at daylight, had a bath in the river, and commenced anew the havoc amongst the partridges. Such trips as these were of frequent occurrence in Chili ; and I can assure the sporting reader that we used to enjoy them amazingly, as he would have done had he been with us.



## CHAPTER III.

Road to Santa Rosa—"Chilian Punctuality"—An unwelcome Companion—Party ready to Start—Useful Qualities of the Mule—Halt for the Night—Enter the Cordilleras—Custom House on the Rio Aconcagua—Maté, or Yerba Tea of Paraguay—Natural Phenomenon—Foiled at Photography—Copper-smelting—Spanish Custom House—Supper—Asado, or Gaucho Roast Beef.

ON the 25th April, at nine A.M., I left San Felipe for Santa Rosa de los Andes, where I arrived at eleven o'clock, the distance being about five and a half leagues, and expected to have found my luggage and mules all ready awaiting me. The road is very good after passing the Aconcagua river ; it is wide, macadamized, and passes through a district highly cultivated and populous. On either side are vineyards and peach orchards, very extensive and productive, which extend for many

miles, and give a most charming appearance to the landscape. Here also are large tracts of land under grass, where the cattle imported from the Argentine Republic are fattened up and rested after their arduous journey across the Andes.

On arriving at the "Hotel del 25 de Mayo," in the Plaza, I found to my annoyance that my luggage had not yet arrived. I went to see the agent who was to have supplied the mules, &c., and found he had everything most satisfactorily arranged, expressing his readiness to start me off on the moment had I so desired. I ordered some extra provisions and necessaries to be put up for the road, and strolled about the little town, which is very similar to San Felipe, but not quite so large or populous. At noon my mules and luggage hove in sight. I was delighted, and expected to be off that evening at about four P.M.; but my South American experience should have taught me better than to expect promptitude on such occasions. I hurried to the agent,

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and informed him of my desire to start at once. He sent for the arriero, or muleteer, who was to accompany me; and on his arrival I found that we could not possibly get away that evening, owing to the absence of some "peones," or assistant arrieros, who had gone to Santiago and had not returned, but were expected on the morrow. I was, of course, obliged to submit (though I must say not very tamely), to this arrangement, and consoled myself with the knowledge that I was not the only victim of "Chilian punctuality."

I am sorry to bear witness to the indifference with which South Americans generally look upon exactitude and compliance with their word in what concerns time; in fact, they have no idea of the value of time, and so, are seldom or never punctual in their appointments. Thus you may be promised most faithfully that on a certain day a certain work will be concluded, or a certain undertaking carried out; but you may always rest satisfied that

several days—nay, in some instances weeks—from the day fixed will elapse before you obtain the fulfilment of that promise. So it was with me in the case of the arriero and his men : I could not get him to start on the following day, Saturday, although the peones had arrived, because he thought the weather looked threatening (which it did) ; but finally on the Sunday, at three o'clock P.M., my mule was brought up, saddled, and ready for the road. I strapped on my rifle, and “girded up my loins”—with my revolver belt,—and announced myself ready. But no, we cannot start yet: the coach from Santiago is expected in half an hour, and probably may bring some “viajero,” who may wish to cross the Andes too; and from whom, no doubt, my arriero would be glad to receive a couple of doubloons for permitting him to join us. At half-past three, however, the coach *did* arrive, for a wonder, and *did* bring an individual who *did* wish to scramble across the Andes at that unreasonable time of year, and who *did* actually pay

two doubloons to my arriero for supplying him with a mule and taking him over.

Was there ever anything more provoking? I, who for days had been gloating over the delicious thought of contemplating nature in all her grandeur and awful magnificence—alone; I, whose greatest ambition in travelling is to scale the craggy precipice, and from its dizzy summit gaze on *His* majestic works—alone; I, who had determined to have seen the greatest masterpiece of the Omnipotent Architect—the snow-capped ranges of the Cordillera of the Andes—the vertebræ of the great continent of South America—and to have contemplated it with the purest feelings of respect, admiration, and awe!—but—*alone*: I, who paid extra, and waited till the latest period of the year in order to pass unmolested and *alone*, was now to be bored by the presence of a chattering, conceited, empty-headed half-breed! Oh! how I detested the sight of that man's blue goggles and unwashed face: not because the goggles *were* blue, nor

because his face *was* unwashed ; but I think—nay, I feel certain—I would have felt a sort of ferocious pleasure in consigning him to —, the coach which had just brought him from Santiago, for at least two hours longer, and thereby rid me of the *pleasure* of his company.

However, there was nothing for it but to put up with the nuisance. As I never have been unpolite, and hope never shall be, I made a virtue of necessity, and stiffly bowed to my intended companion of the journey ; by which bow, genuinely British, I considered he *ought* to have understood that I was not over ambitious to cultivate too close an intimacy with him. As I shall not have much to say to or of the individual in these pages, I do not see any necessity for presenting him to the reader, and so I shall dispose of him without further ceremony. At four P.M., my servant announced that everything was ready, and the arriero prepared to start. On going into the yard to inspect my escort, I found we had eight mules properly of my party ; that is to say, four

with luggage, two for the arriero and his assistant, one for my servant, and one for myself; they seemed in good order, and were certainly fine, large, strong animals.

The mule may be considered about the most useful beast of burden in South America; her powers of endurance and strength are really astonishing, when one comes to consider that for eight or ten days consecutively she can journey from daylight to dark without a morsel of food, and is very frequently, in the greater altitudes of the Andes, for days and nights without either water or pasture. The rarefaction of the atmosphere affects her least of any animal, and her security from falling or stumbling on precipitous paths recommends her to the traveller and the merchant as the most safe means of transport in those countries. I have travelled some thousands of miles in the interior of South America, passing and repassing mountainous districts, and have invariably used the mule, as being more constant, more safe, and least fatiguing to ride of any animal I



have met with. But there is a certain amount of caution and care required in their management and treatment. When on a narrow dangerous road, or in a marshy unsafe district, never attempt to guide or interfere with her free selection of path or footing; but allow the reins of your bridle to hang loosely on the neck, and leave her to find her way: you may place every confidence in her sagacity and knowledge of steering clear of difficulties. Never pass close behind your mule, or at least within range of her ever-ready hinder legs; you may escape sometimes, but as a rule they never miss an opportunity of saluting you most warmly, and generally leave a pretty strong impression, not only upon your mind, but your body also, of the danger of too close an acquaintance with their hard and well-formed hoofs.

After inspecting the animals, and being satisfied as to their soundness and strength, I gave the word to move forward, and away we rattled at a brisk trot out of the plaza, and down a street

leading east out of the town ; Master “ Grouse ” barking most joyously at getting his liberty, and the prospect of a day’s sport :—poor fellow, he little knew the hardships he was destined to endure before he got through that long journey. We gradually got out of the suburbs of the town, and began winding and turning, following the road towards the Cordillera, until we found ourselves in the open uncultivated country. At about seven P.M. we came to a halt for the night, at a miserable little “ rancho ” or hut, where my arriero prepared a rough sort of dinner, of which we partook heartily ; then having stretched our mattresses in the open air, we turned in about half-past eight P.M.

*Monday, 28th April.*—At four A.M. we were all astir, and the arrieros preparing for the march, which operation lasts generally an hour and a half. We made some tea and toasted bread, which is about the best thing one can take before starting in the morning, and at six o’clock commenced our march, steering towards the east, and beginning to enter the

Cordillera. Along the road may be yet seen some ranchos and the shepherds' huts on the various haciendas. The scenery about here is not very picturesque, the district being rather barren and uninteresting. The road, winding along the stream which forms the Aconcagua river lower down, is a mere mule track, and rather rough and stony; in some places ascending and descending small ledges of rock, which jut out like so many promontories from the base of the mountain on either side.

At 8.30 A.M. we arrived at the *Resguardo*, or custom-house station of the Chilian Government, situate in a wild picturesque spot on the banks of the *Rio Aconcagua*. In the winter this post is abandoned by the officers, as no traffic is possible, and the cold is most intense. The scenery here begins to assume something of the "Andes" form, and in the distance we saw the summits of some of the higher ranges, with their snowy peaks glittering in the morning sunlight. Having got ahead of my companions some twenty to thirty minutes,

I alighted at the gate of the guard-house, and was politely invited to enter and take a seat beneath the corridor. The guard consisted of four, two officers and two men; the wife of one of the former was "squatted" on the floor at the side of a "brazero"—a shallow circular iron or brass vessel, in which ignited charcoal is kept, and used for heating rooms in almost every house in Chili. In the present instance it served to boil some water to make "máté," the favourite South American beverage.

This is the "yerba," or Paraguayan tea, and the infusion does in some respects resemble the genuine China tea drunk in Europe, but is very bitter, and is taken in a very different way, being imbibed through a "bombilla," or silver tube, with small holes perforated at one end. The yerba is placed in a small gourd, sugar is added, and boiling water poured in, when the maté is ready for use; it being drunk generally boiling hot. The lady kindly presented me with this refreshment, which I can assure the reader was most agreeable in the

got my camera mounted and a plate in, and was about to uncover the lens, when a most violent squall obliged me to abandon the attempt at photography. I felt most vexed that my first effort should have failed, but consoled myself with the hope of obtaining much finer views farther on; so packing up my camera once more, we prepared to load the mules and get started. It must be recollected that every time a lengthened halt is made on the road it is necessary to unload the mules.

For the next five hours the scenery was without variety, until descending into a small valley we came upon a few huts, and an establishment for smelting copper ore. The furnaces are about the rudest and most primitive contrivances of the kind I have ever seen; the greater part being built of mud or clay—fire-bricks being only used where the flame

army, during the War of Independence, jumped his horse over it, to escape from his pursuers. I cannot vouch for the truth of this statement.

came in immediate contact with the sides, roof, and chimney. The ores are of a rich class, principally sulphides, and are brought from a considerable distance to be smelted here, as it is the nearest point at which fuel can be obtained. From the few operations I saw carried on there I should say about one-half of the copper *ought* to have been lost in the smelting. About half a mile further on we arrived at the last human dwelling (inhabited) to be met with on the Chilian side of the Andes, the "Guardia Vieja," or old custom-house, used in former years by the Spaniards. It is a miserable hut, and almost unprovided with the necessaries of life, the keeper merely inhabiting it during the summer months, from November to April, or beginning of May, according to the severity of the season.

Although we arrived here at 4 P.M. the arriero determined to stay during the night, and start very early before daylight on the following morning, in order to pass the "Cumbre" \* at

\* *Cumbre*, the summit, or highest part, applied to mountains; the pass is called "*La Cumbre*."

as early an hour as possible, and thus escape the usual strong winds which commence about noon, rendering it both dangerous and disagreeable to attempt the passage. Having unloaded the mules, and given them water, my servant made a fire in the yard, and we set about cooking our frugal meal, which consisted of a dish called *cazuela*, or broth, with meat and vegetables well boiled, and the genuine *asado* of the Gaucho.

The *asado*, or roast-beef, requires a practised hand to turn it out with the peculiar, delicious flavour for which it is celebrated among South American travellers. It is generally a piece of good beef selected from the ribs, or along the loin ; it is well washed, salted, and an *asador*, or spit, being run through it, is then placed to cook over the half-burnt embers drawn apart from the fire ; the extremities of the spit resting upon two large stones, and being turned occasionally. I must say, that for a piece of "Gaucho" roast-beef, I would most willingly give up the best dish that was ever placed on

the table d'hôte at the Hotel du Louvre in Paris.

About 8 P.M. the weather began to look threatening, and a few large drops of rain indicated that we might expect something unpleasant before morning. Up to this time the weather had not broken, and we were anxiously hoping to pass the Cumbre before the first grand storm of the approaching season came down; it was, therefore, with no little anxiety for the morrow that we stretched ourselves on our hard beds, and sought to obtain some refreshing sleep.



## CHAPTER IV.

An early Start—Precautions against Cold—Casuchas, or Huts of Refuge—Magnificent Mountain Scenery—Past the Line of Vegetation—Vast Extent of View—Flock of Condors—A formidable Victim—Threatenings of a Storm—Fall of Snow—Awful Situation—Abandoned Machinery—Terrific Gust of Wind—Lost in the Snow-storm—I regain the Track, and rejoin my Arriero.

*Tuesday, 29th April.*—At two o'clock A.M. I was roused by my arriero announcing that he was ready to start, and required to make up my bedding, &c., to complete one of the cargas (mule load). The morning was as black as night, cloudy, not a star visible in the firmament, and a strong cold breeze blowing from the westward. Up to this I had not put on any warm clothing, but from the appearance of the weather I thought it wisest to start prepared, and therefore donned an overcoat,

and, with two warm "ponchos" and a muffler, defied the elements to do their worst. At half-past two we started at a brisk trot. My dog's feet had become cracked the day previous, and before starting I had a set of shoes, made of hide, sewn on to his legs, with which he scampered along courageously, no longer shrinking from the sharp gravel.

As it was dark during the first two hours of this day's journey, I could neither see nor appreciate the scenery; but at the grey dawn we found ourselves still following the course of the Aconcagua river in a deep valley with enormous mountains on either side, the road very rough and stony, and gradually ascending. Here I saw the first "*casucha*," or hut of refuge from snow storms, erected in former years by the Spaniards. They are all built of brick and lime, very strong, with arched roofs; the entrances being generally at a height of ten feet from the ground, to prevent them getting choked up with snow. They formerly had doors, and were supplied with firewood and a

small quantity of provisions, for the unfortunate traveller who might be caught in a *temporal*; but now-a-days, I am sorry to say, they have neither doors, nor firewood, nor provisions, and are so filthy and dilapidated, that travellers, with very few exceptions, prefer braving the severity of the tempest to sleeping in one of them. They are met with at distances of from two to four leagues from each other in the lower regions; but in the higher parts of the road towards the *Cumbre* are much more numerous, as the danger becomes more imminent. About seven o'clock we passed a troop of mules and arrieros coming from the other side, and got some information as to the state of the road and the pass; both of which were reported as yet in good condition. At half-past nine we arrived at a part called *Los Ojos de Agua*, which, translated, literally means "the eyes of water."

The scenery here is very wild and magnificent, the mountains on the left rising almost perpendicularly to a height of 7,000 to 8,000

feet. Near their summit issue several small streams of water from fissures in the rock; hence the name "Ojos de Agua." Here the sun shone out beautifully, and the morning gave every indication of a very fine day. We halted for a few minutes, and took some cold meat and bread for breakfast, with a draught of the most crystalline and delicious water I have ever drunk. In about half an hour we arrived at a point where the road turns at a right angle from the river Aconcagua, which we leave on the right, and to which we bid a final adieu.

Here all vegetation ceases, and the eye meets nothing but bare rocks and clays, the débris of decomposed granite, porphyry, clay slate, &c., which present such a splendid variety of colours as make the mountains appear as if painted by the hand of art. An hour's journey brought us to the foot of a steep ascent, at an angle of about thirty-five degrees; the road being about two feet wide, and cut into the side of the mountain. We observed a troop of mules laden

with merchandise, &c., just arriving at the summit, and from the distance they appeared like so many ants moving slowly along. We commenced the task, and in about half an hour arrived at the top; the view was magnificent, and decidedly merited the attention of the photographic department.

On the very summit was a *casucha*, upon the roof of which I climbed and looked away towards the north. The view which met my gaze was really superb and romantic: beneath me at a distance of a few hundred yards were the shores of the celebrated *Laguna del Inca*, or lake of the Inca, the aboriginal rulers of the South American continent; the still and placid waters resembling an enormous mirror, in which were reflected the gigantic rocks on the surrounding shores; those on the N.E. of gaunt fantastic form, rising perpendicularly from the water to a height of several thousand feet. Turning towards the east, the eye encounters a fine open view extending the entire length of an enormous valley, through which

lay our onward route, and from the extremity of which the principal range of the Cordillera takes its rise. On this range is situate the *Cumbre* Pass—the Rubicon of the Andes—which when once passed, all serious danger ceases.

From this elevated position, as I gazed around me, all was barren and desolate; rugged rocks and mountains, snow capped and inhospitable, with not a living thing to be seen, save the gigantic “Condor,” that royal eagle of the Andes, which soars higher than any other of its species. These may be seen by hundreds, hovering above our heads and watching for an opportunity of pouncing upon their prey; usually the poor fatigued and overloaded mule, or the more tender young cattle which drop down from exhaustion on the rough inclement track. Even now we have just started a flock from their victim; beneath yonder rock lies the skeleton of an animal but a few hours dead; nothing now remains but the bone and hide, almost every morsel of flesh having been

picked off, and for years will that skeleton retain its present form and condition as if it were embalmed; decay being almost unknown in those altitudes. There are some hundreds of condors, soaring about and awaiting our departure to commence anew their carnivorous revels; but they soon tire, being already gorged, and alight upon a ledge of rock about 200 yards off. What a chance for my rifle! As quick as thought I descend from the casucha and unstrap it from the saddle; it is already loaded, I fire, and the report is given back by a thousand echoes. The terror-stricken condors take flight; all save one, which rolled over the edge of the precipice, vainly struggling with the leaden messenger that had reached him, and down he came with a heavy "sough" on to the shingle at my feet. "Grouse" was on to him in an instant, but on examination he begged to decline a closer intimacy, and kept a respectful distance. I approached him, and found that a wing was broken, but it puzzled me how to lay hold of him: he was an enor-

mous and very powerful bird, and I decidedly objected to make acquaintance with his formidable beak and talons: indeed, he flapped his wings about with such violence that I thought it better to send another bullet through him and despatch him at once. I was, however, saved this loss of ammunition by the arrival of my arriero, who quietly flung a lazo round his neck and held him while I despatched him with my hunting-knife. He measured from extremity of wing to wing 8 feet 7 inches. I took out some of the larger feathers, and the white collar or crest of down from off his neck, which I preserve as mementos of that trip.

But to return to the view, and my camera. I was about to have it unpacked, when my arriero remonstrated, and prophesied an immediate change of weather; he insisted that we ought to move on and lose no time in getting over the *Cumbre*, as he feared a severe thunderstorm. His prognostications were verified almost as soon as he ceased speaking; for the sky became overcast and cloudy, and a few



flakes of snow began to fall, which induced me to follow his advice, and mount my mule without delay. The cargas were ahead, so we pushed on at a brisk trot, and overtook them as they began ascending the zigzag track towards the Cumbre. It was now about noon, and every moment the snow came down thicker and heavier: at first it appeared to me as nothing; there being no wind, it did not feel particularly cold, so I jogged along ahead, rather enjoying the change than otherwise.

The ascent from the Chilian side is much longer, but not so steep as on the other; it occupied us about two hours to reach the summit: but how and under what circumstances, did we reach the summit? Allow me to draw a long breath before I begin to describe the last hour of my first scramble across the Andes by the Cumbre Pass.

Reader, it was terrific—appalling. I can find no fitter words to describe it; but I will illustrate these words as they are used in the present instance, and try to convey to you an

idea of their sense. As I have before said, I went on some distance ahead of my companions, in order to enjoy more leisurely any fine view or other attractive object. About halfway up I passed a large troop of mules heavily laden, the same probably which I had seen in the morning ascending the other narrow road from the *Ojos de Agua*. The road, or track, was still perfectly visible, as the snow had not yet begun to settle down heavily; but every moment it was becoming darker, and loud peals of thunder announced the approach of a violent storm. Still I pushed on, anxious to gain the summit and enjoy the view alone; if I may consider my dog as nobody.

About two-thirds of the way up I came to a sort of plateau of small extent, and, to my surprise, found here some bullock-waggon loaded with large pieces of machinery, segments of wheels, shafts, cranks, &c., some of which must have weighed three tons at least. They were partially covered with snow, and how they came to be lying in such an out-of-the-way place

versal nature was shrouded in a winding-sheet of snow : not a rock nor landmark visible. I began to doubt as to whether I was in the right track or not, and took out my pocket compass to ascertain in what direction I had been going when I stopped ; but this was no easy task : my mule had turned once or twice, so had I, and for the life of me I could not tell in which direction I had come, or how to proceed. It became darker and darker every moment, and the storm increased tenfold. I had my compass on the palm of my hand to level it, and was looking most anxiously at the needle, when another terrific gust of wind, stronger than the first, and charged with sand and snow, came down upon me, carrying away my compass, my hat, and my "poncho," tearing my overcoat right up the back, and leaving me in "tatters." My mule took fright, also, and went off at full speed down the side of the mountain, regardless of road, or track.

I was now obliged to throw myself down and burrow in the snow, in order to avoid

the continued fury of the tempest and prevent myself from being blown over a precipice, which through a momentary clearing I got a glimpse of on my right. My poor dog huddled himself close to me and whined most piteously. I was in danger of being blown away if I stood upright, and of being buried beneath the enormous masses of snow-drift if I lay still. I knew not what to do or how to turn, when, to my delight, I found that the wind was blowing off the snow from around me, and had ceased to carry down more from above. I now clearly saw the track about ten feet off and crept towards it on my hands and feet. In this way I reached the ledge of rock which I before mentioned as being a sort of shelter, and there rested for a short time, until the fury of the storm in some measure abated. In about ten minutes the strong gusts of wind ceased, but the snow still continued.

I determined to regain my party at any risk, and commenced plunging down on foot in search of them. A little way down the track became

again entirely obliterated, as the snow had accumulated to a depth of several feet. I still trudged on in darkness and doubt—stumbling and falling, shivering and blowing, until I arrived at the small plateau and joyously recognized the bullock waggons and machinery. Knowing by these land marks that I was in the right track I determined to await here the arrival of my companions. In the course of a quarter of an hour (during which time I was almost frozen) my party hove in sight, together with the other troop of mules which I had passed. My arriero was delighted to find me safe, as he had great fears of my losing the road, and eventually getting lost.

I can assure the reader that when I even now call to mind—and I can do so vividly—my critical position on that eventful day, *alone*, on the highest range of the Andes, 12,000 feet above the sea—lost and helpless, with the probability of never again seeing the face of man,—for one whole night passed there would have been sufficient to accomplish such

an end, and even during the short time I did spend there I was almost frozen to death,—then the probability of tumbling headlong over a precipice into the yawning gulf beneath in trying to find my way; for the snow was so deep and the day so dark that I could not distinguish a safe from an unsafe path—I say, when I think of these things now it almost makes me tremble.

But the reader must not run away with the idea that the great Andes is all the year round like what I have just described it. On the contrary, during the summer months, or even a day previous to my crossing, it would have been a most delightful trip, with no risk whatever to be run. I was simply unfortunate (or perhaps fortunate) enough to see it in all its terrific grandeur, and experience the sublime force and vastness of Nature's power.

## CHAPTER V.

Snow-Blindness—We reach the Cumbre Pass—Stupendous Scene of Desolation—A fresh Outburst of the Storm—A Mule blown over the Precipice—I lose my Scientific Instruments—We cross the Cumbre Pass—Port Wine the best Stimulant against Cold—Loss of Mules—Majestic Grandeur of Scenery—Snow Drifts and cutting Wind—Start a Puma—Cold paralyzes the Sportsman—A Fire in Sight—We reach the Casucha — Its Interior and Occupants—A Stroke of Generalship — Wretched Sleeping-place — Horrible Stench—Its Cause.

BUT we had not yet passed the Rubicon. I secured a heavy "poncho" and another hat; but, to my misfortune, I discovered I had lost my blue goggles, and could not replace them—a want which nearly cost me my sight, as looking constantly for several days at nothing but snow afflicted me with what is known as snow-blindness; and as yet I have not thoroughly recovered the power of distinguishing colours. I

found my mule safe among the others, and mounted once more, to ascend and pass the very spot which was the scene of my previous mishaps.

Slowly and steadily we wound along beneath the friendly ledge of rock and sallied forth boldly to brave the storm ; but at this moment it was tolerably quiet, and we passed up without any serious inconvenience. The track here is zigzag and steep, but no earth was visible ; we were wading through at least three and a half feet of snow, and trusting only to the mules to find the way. It was still snowing and dark, the wind occasionally tearing down through the mountain gorges with all its fury and violence ; still upward we went, the encouraging voice of my arriero cheering us on, and rallying us when we lagged behind.

Hurrah ! At last the Cumbre is in sight. But we have many windings to make yet before reaching it. Nevertheless it is encouraging to see the goal of one's expectations, although it may be distant, and difficult to arrive at. And



now the snow has ceased for a little, and we make good headway. I cast a glance behind me. Great God, what a magnificent sight! Looking down thousands and thousands of feet, all is snow and frigidity—desolation and wilderness! A moment and all is silence! Has the storm ceased? shall we be allowed to proceed unmolested? A tremendous peal of thunder, bursting immediately over our heads with a fearful crash, as if the rocks were rent asunder, was the answer to my doubts.

We were now approaching the summit, and the storm, like a giant refreshed by slumber, arose with redoubled fury and strength, and bore down upon us with all its might. “Dismount! dismount!” shouted the arriero and his men simultaneously, and in a moment we were on the ground with our backs to the storm. It was a renewal in greater stress of the one I had already experienced, and in its effect was just as injurious. The arriero and men, being more exposed and higher up, were left with their clothes in ribands; but this was

not the worst. One of the loaded mules was blown over the precipice, and went rolling down the rocky steep, until we lost sight of her in the profound abyss beneath. Some of my principal scientific instruments went with her, and were of course lost to me for ever.

The storm, as if it had wasted all its strength and fury in this last grand *coup-de-grace*, allowed us to steal a march and gain the summit; and then the great CUMBRE PASS WAS CROSSED. We waited not a moment to gaze upon the landscape before us—awfully grand though it was—but sought to gain a sheltered spot and take some stimulant to prevent serious consequences from the exposure to which we had been subjected. About fifty paces down on the eastern side we halted, and opened a bottle of port wine, and I assure the reader that I never in my life have enjoyed a stimulant equal to that deep draught: it seemed to give me a new existence, and sent the half-frozen blood bounding through my veins. The extremities of my nose and ears were without a

particle of feeling, and white and cold as death; but the arriero rubbed them with a handful of snow and thus restored circulation, when I began to feel a little more comfortable.

We remained in this position for a quarter of an hour. What a change from the half-hour previous? Here there was scarcely any wind, although the snow still continued; but it was not so on the side we had just left, and on the summit. The other troop of mules, as we were afterwards informed, were some distance behind us, and on attempting to pass the bleak unsheltered spot I have alluded to, were repulsed and driven back to the plateau lower down; there the arrieros unloaded them and rearranged the cargas to half their former weight, leaving the remainder on the ground close to the waggons and machinery. Then with light loads they recommenced the ascent, and after a tremendous effort got over, with the loss of three mules and cargas blown over the precipice, and several others which remained on the plateau frozen to death. This, together


with the probable loss of all the merchandise left behind (as it was impossible to remove it until the opening of the following spring season), was a most unprofitable day's work for the poor muleteer ; the animals being all his property.

The scenery around the spot where we stood, all dismounted, was the most awe-imposing and majestically grand that I have ever witnessed ; not only because of its enormous elevation and extent, but for the combination of elements, terrestrial and atmospheric, blended in one confused amorphous mass. At intervals the snow would cease and a fine clear view be obtained of the valley some thousands of feet beneath ; a vast horizon of snow, with desolation reigning all around. Stretching away to the south-east was the route we had to follow through the valley, and we occasionally got a glimpse of the apparently endless chain of mountains which enclose it at either side, towering some 15,000 feet above the level of the sea.

It was now about two P.M., and my arriero

whither she desired, I espied a fire at a considerable distance, and determined on awaiting the arrival of my companions. On coming up my arriero informed me that the fire was at the casucha, where we were to pass the night; this was joyful news for us, and we pushed on as rapidly as possible, stumbling over the loose stones hidden by the snow, until we arrived at the long wished-for haven of refuge. I was the first to arrive, and found two individuals seated at a fire beneath an immense overhanging rock which sheltered them from the thickly falling snow.

A few yards off might be distinguished the casucha, the door of which was at least ten feet from the ground; but the steps which originally existed as a means of entrance were now so dilapidated as to be of little service. I had, therefore, to scramble up by inserting my toes between the interstices of the bricks, and so gain an entrance to this "palace of the desert." I was under the impression that the casucha was untenanted, and that the two



individuals at the fire, together with my party, would have had sufficient room and find a shelter—though an inhospitable one—beneath its roof; but on entering, I was quickly disabused of this belief, for there were already four individuals equally as unfortunate as we had been, who were in possession, and had their beds extended on the floor. It was perfectly dark within, and the first intimation I had of their presence was my stumbling over the feet of one, which brought forth in very strong terms an expression of his disapprobation of this proceeding. I apologized, of course, and proceeded to strike a light, when I found that there was scarcely standing room in the miserable hut, the floor of which was only about ten feet square. The walls were pierced with small square holes intended as ventilators, through which the snow and cold wind entered freely. There were various articles, such as saddles, clothes, &c., strewn about or piled up in corners; and, on the whole, I must say that my prospects of pass-

his companions would have the goodness to "rearrange" themselves in a smaller space; adding, at the same time, that I had the honour of being an important official of his government, and, consequently, entitled to some consideration.

My request was immediately complied with, and I had the satisfaction of seeing the four occupy a space considerably less than two had done previously. I now proceeded to have my bed stretched out in one corner, and ordered some ignited charcoal to be placed in the centre of the floor, in order to heat a little the freezing atmosphere. My forethought in taking a sack of charcoal was here most amply rewarded; as, within the casuchas, one cannot possibly endure the smoke from even dry wood, and in many instances, no firewood can be obtained in the vicinity of a camping-ground in the higher regions of the Andes. My servant boiled some water and made me a cup of tea, which, with a crust of bread, was the only dinner I was able to partake of; a reaction

having set in after the severe fatigues of that eventful day.

I was almost prostrate, and suffered from a violent nervous headache, so throwing myself upon my mattress, in a few minutes I was sound asleep. How long I thus slept I know not, being awoke suddenly by my dog Grouse endeavouring to extricate himself from the cosy but rather confined position which I had assigned to him betwixt me and the wall at my feet. The candle was still burning in the opposite corner, and threw a dim, lurid glare over the interior of the hut. I sat upright and gazed around me for a moment, but was obliged to drop again immediately, being almost stifled and suffocated with the most intolerable stench I ever recollect having experienced : even the "seventeen distinct smells" of Rio de Janeiro in the Brazils were nothing in comparison. The atmosphere from about two feet from the floor upwards was a thick cloud of steam, ascending and curling, slowly finding an exit by the doorway. On the floor



were piled a heap of human forms lying in every position, all apparently sound asleep, and ignorant of or indifferent to the pernicious atmosphere they were inhaling.

I knew it was both useless and absurd to try and remedy this state of things, and so was obliged to "grin and bear it" (to use a vulgarism) until daylight, when I aroused my arriero and endeavoured to get a "breath" of fresh air. He informed me that during the early part of the night there arrived a large party of arrieros and men, some going towards and others coming from the Chilian side, and as many as could stow themselves away in the casucha did so : I found that eighteen adults actually occupied this den on that night ! They came in with their garments soaked through, and covered with frozen snow ; this became thawed by the heated air of the hut, and eventually commenced to evaporate, and so caused the atmosphere to be impregnated with steam and the *delicious* odours I had inhaled on awaking.

## CHAPTER VI.

A snowy Waste—My Nigger insensible from Cold—A frozen Traveller—Natural Bridge of Stone—Mineral Waters—Effects of Snow-blindness—Casucha at *Punto de las Vacas*—A long Shot at Huanacos—Foolhardy Travellers—A rocky Shelter—Vegetation of the Andes.

*Wednesday, 30th April.*—Still snowing and a strong piercingly cold wind blowing from the westward. I muffled myself up and descended from the casucha into about four feet deep of snow; everything was completely covered, my portmanteaus and trunks, saddles, mule-trappings, &c., with a thick deposit of snow. The poor shivering mules were crouching beneath some large rocks, and seeking to shelter themselves from the fury of the blast. The scene was truly miserable; the mountains in the distance were covered with a thick veil of cloud

and snow-drift, and the long valley looked dreary, bleak, and inhospitable. Having surveyed this inclement scene, and gazed long enough at the lowering clouds to come to the conclusion that there was no hope of its clearing off that day at least, I was obliged to seek shelter once more within the hut and endure the horrid stench in preference to the cold and snow. On entering I found the occupants all astir and crowding around a miserable attempt at a fire in the centre. My nigger had suffered so much from the cold on the previous day that his African blood was still almost frozen, and I could not induce him to move from the position he had taken up on the previous night: indeed, he appeared perfectly insensible and apparently dead. I had some tea made and endeavoured to get him to swallow a few spoonfuls, after which he rallied a little; but he refused to move or continue the journey, begging us to leave him there to die.

I made a light breakfast of some tea and biscuit and prepared once more to face the

storm ; my arriero told me if we remained there till the following day and the snow continued, it would be impossible for us to get out of it, so we had no choice but to proceed. At 11 A.M. we were all ready and about to start, when a party of four men arrived from towards the Chilian side, bearing the apparently lifeless form of a man. I approached the group and learned that they had been caught with a troop of mules on the other side, when the storm of the previous day commenced. They had persevered and succeeded in crossing, but on arriving at the base of the eastern side found that one of their number was missing. They had last seen him near the Cumbre toiling up on foot, but some distance behind, and thought he was still with them on descending ; he was, however, nowhere to be seen, and they determined to return and search for him. Close to the Cumbre they found him crouched beneath a ledge of rock, but insensible, and apparently frozen to death. They carried him down and arrived at the casucha

believing him dead, as he had shown no signs of returning life. We had him placed on a mattress in the hut, and applied some stimulants and friction, and after about half an hour had the satisfaction of seeing him revive. He was a passenger from Santiago to Mendoza, and had been taken over by the arrieros from charitable motives, not being able to pay his fare, nor provide himself with the necessaries of life on the journey. Having seen him past danger, I was obliged to mount and be off after my arriero and the troop which had already started; my nigger had to be carried forcibly out of the casucha and mounted upon his mule, when, wrapping a blanket around him, he jogged along almost insensible to the cold.

About two P.M. we came to the "Puente del Inca," a natural bridge formed of stone and stretching across a small rivulet. Beneath this bridge exist celebrated mineral waters, warm and charged with sulphurous and boracic acids, calcareous matter, and other substances,

of a high sanitary order for cutaneous diseases. In fine weather travellers generally take a bath here *en passant*, but the thermometer being some four degrees below zero when I had the pleasure of being there, I thought it somewhat too cold to try its refreshing properties. I merely looked at the fine stalactites growing from beneath the arch, and was rather ambitious to obtain a couple, but the storm still continued to rage so furiously that I was obliged to abandon the idea of descending.

Our route continued to lead us still on through the valley, which was covered to a depth of nearly four feet with snow. Master Grouse seemed to enjoy it amazingly, and scampered about rolling and tumbling without showing the least evidence of being tired.

Here I began to experience a very strange sensation which alarmed me considerably; it was the beginning of snow-blindness, or the impotency of distinguishing colours; for instance, my black dog I thought had turned

green, all white objects appeared yellow, all scarlet seemed faded into a dirty purple, and so on. At first I could not imagine what was the matter, and believed that my dog *had* actually turned green through the exposure and cold; he being the first object that attracted my attention. I immediately asked the arriero if such was not the fact; his reply was that I had better not look much longer on the snow, but keep my eyes closed as much as possible, as it was considered injurious to the sight; and that it was simply an illusion on my part to think that the dog had become green. I tried to follow his advice for the next two days, during which time it snowed almost incessantly, but am sorry to say that my curiosity and desire to look at the mountains got the better of my prudence, and caused me to suffer considerable inconvenience even to the present day.

At 4.30 P.M. we arrived at the "Punto de las Vacas," and halted on the edge of a rapid stream, on the opposite side of which on a high

bank stood a casucha, where we determined staying for the night; we forded the stream, and clambered up to this second edition of the previous night, and fortunately found it vacant. It was a shade better in point of cleanliness and facility of entrance, and, on the whole, held out some prospect of our enjoying a fair night's shelter and repose. We found some firewood piled up in a corner, and immediately proceeded to make a fire in the centre of the floor; my arriero fetched some water, and got ready a piece of "asado," which, together with a cup of good tea and bread, formed an excellent dinner; we then all "turned in," and enjoyed a good night's sleep.

*Thursday, May 1st.* — At seven A.M. my arriero aroused us, and expressed a wish that we should start as soon as possible and get down to some more hospitable region, where the poor animals could procure some food, as since the night at the Guardia Vieja they had scarcely had anything to eat.

While we were having some breakfast, and



the mules being loaded, there arrived several of the party who remained in the other casucha the night before last, and who had passed the previous night under some large rocks at the "Puente del Inca." Being wet, cold, and hungry, they determined on remaining at our quarters and cooking some food, as there was no firewood to be found where they had passed the night.

I was conversing with one of this party outside the casucha, when I was suddenly startled by a whiz on my left, and to my astonishment four large huanacos\* went bounding past me at a distance of about thirty yards. I rushed towards the hut to fetch my rifle, and verified an old proverb: "The more haste the worse speed." On trying to scramble up the doorway I fell backwards, and lost a few seconds in retrieving myself; so that by the time I got into the hut and loaded my rifle the game was a long way off, going at full gallop up the side of the mountain. I

\* A species of llama.

elevated the sight to 600 yards and fired, apparently without effect, for they still continued their course until they gained the summit of a small conical hill at the base of the higher range of mountain; where they quietly stood gazing defiance at us below. The distance must have been at least 900 to 1,000 yards. I elevated the sight to the latter distance, and tried another shot; but I could scarcely distinguish the forms of the animals, and aimed at the indistinct mass on the summit rather than at any particular one of the huanacos. My servant held my glass at my elbow, and immediately after firing I snatched it and was in time to see the effect of the shot. Whether it struck one of them or not, I could not precisely determine, but I distinctly saw one bound into the air and the whole four scamper away faster than before, until I lost sight of them in the distance. Vexed at not having had my rifle loaded and ready to hand, I determined for the future to be always prepared for such an emergency. Mounting my mule, we started

at 10 A.M., the snow having temporarily ceased a few hours previously.

The wind got up very strong about eleven o'clock, and, blowing in our backs, was most fearfully cold; the thermometer standing at 33° Fahr. About twelve o'clock we encountered a large party of Argentines going towards the Cumbre, and intending to pass over to Chili: amongst them were several females and small children. I did all in my power to prevent them proceeding farther on their foolhardy journey, telling them that the Cumbre must be then so blocked up with snow as to be impassable. They persevered, notwithstanding, and went ahead; but I afterwards learned that they were obliged to return to Mendoza after waiting several days in the casucha we had just left, in the hope that the Cordillera would again have become passable before it became finally closed for the season.

The snow now commenced again, and lasted without a moment's cessation until 4 P.M., when it changed to sleet, and finally ceased

altogether about half-past five. Towards dark we arrived at a point called the "Puntillo Negro," where there are immense detached masses of rock strewn about the valley, and which formed a sort of shelter from the cold westerly wind. Here we determined to halt and take up our quarters for the night, as in the neighbourhood there was good water and a little pasture for the mules; so I had my mattress stretched beneath an overhanging mass of rock, and formed a breastwork of my trunks, &c., to keep off the wind. It was blowing a perfect hurricane, but the snow had ceased, and the sky began to clear and promise a little fine weather.

The scenery hereabout is really very fine; the mountains looked exceedingly picturesque with snow on the summits, and the various grades of temperature distinctly defined by the absence of that element lower down, and finally, the vegetation—though scanty it be—of the middle ranges of the Andes. Here may be seen the cactus, the wild aloe, and the "tuna," or prickly

rado," and in many places the track wound up steep ascents; its edge being in some parts barely wide enough to admit of a mule and carga passing. We were obliged to dismount several times in passing bad and dangerous spots called "laderos," where the road almost overhangs the river, which is at a depth of about 160 feet beneath. In one of these critical passes we encountered a large drove of cattle going to Chili, and were obliged to return a considerable distance in order to let them pass.

The valley about here becomes more open and extensive, and the great mountains begin to appear lower and lower until away towards the east they almost become lost in a line with the horizon. In the distance may be seen some fine undulating hills, apparently covered with verdant pasture, but on nearing them we find nothing but brushwood and shrubs intermixed with the cactus and prickly pear.

About three P.M. the road struck out into the dry bed of the river, some 600 to 800 yards

wide, covered with sharp gravel intermixed with fine white sand. The wind was still blowing a perfect gale, and caused us to suffer a great deal of inconvenience from the sand, which it took up in spiral clouds and sent whizzing into our faces with such violence and force that I was obliged to wrap my head in a plaid and allow my mule to "gang her ain gait." After two hours of this disagreeable road, we ascended a small ridge of hills on our left, and began to enter upon the district of Uspallata. Here there is any quantity of firewood, but very little pasture; the road was very good, ascending and descending through an open undulating country until seven P.M.

We saw in the distance two or three camp fires, which my arriero told me were at the guard house at Uspallata; half an hour's trotting brought us to the spot, and I must say that I felt pretty tired and glad to dismount, after eleven hours in the saddle. We found a number of persons here on their way to the Andes, but on learning the news which

we brought of the state of the pass they abandoned the attempt and returned to Mendoza. My arriero purchased a couple of lambs and immediately despatched them, taking but a few minutes to kill, skin, and place a joint upon the spit; he also found some wine and fresh bread, and I assure the reader that I enjoyed that rough dinner far more than I ever recollect doing at a first-class restaurant in Paris or London. I retired at an early hour and slept well till morning.

*Saturday, May 3rd.*—A most delightful morning, up at sunrise and enjoying the fine scenery from the guard house. Uspallata is an estate which formerly belonged to an English mining company, who worked some argentiferous lead-mines in the vicinity, but which for some reason have been abandoned for many years. I regret that my short stay did not permit me to visit those mines, but on my return to South America I expect to explore the district, as I have that of the neighbouring province of San Juan. By the earthquake of the 20th March,

1861, the houses at Uspallata suffered considerable damage, that portion occupied by the officers of the Resguardo being completely destroyed; the walls of the remaining parts are cracked and shaken, and would not be over safe in case of another shock. Around the house are a few fields sown with alfalfa or clover, and fenced round by poplar trees.

From a passing glance I should say that this estate cannot produce a great income, and probably would not be inhabited were it not the custom-house station of the Argentine Government. The houses are built nearly in the centre of an extensive plateau, stretching away for several leagues to the north, where it forms the horizon, no mountains being visible beyond. On the south and west may be seen the snow-covered Andes looking black and majestic in their towering heights; towards the east are several low ranges of mountains said to be highly metalliferous, the rocks being of the transition series, principally clay slate; through these the road to Mendoza winds its way in



an easterly direction. About three leagues from Uspallata the road to San Juan branches off from that of Mendoza, and strikes out towards the north ; this route I had intended to have taken, but was induced by a feeling of curiosity to see the ruins of Mendoza ; I therefore determined to go there first and follow on in the diligence to San Juan.

After having my luggage examined and passed, I prepared to start for Mendoza, leaving my arriero and servant to follow on the route to San Juan. I engaged with another arriero who was to take my companion of the journey to Mendoza to take me also, and so with my camera bed and a carpet-bag I started at nine A.M.

Our party now consisted only of three—the nondescript, the arriero, and myself—with a cargo mule ; which, being lightly laden, kept up a brisk trot. For about two hours the road winds through a deep gorge, and eventually leads out on the summit of a range of hills covered with pasture. At this point begins the

“Paramilla,” which translated means a bleak cold district; generally a series of low mountain ranges, over which a sharp cutting wind is continually blowing. This class of country is about the most fatiguing and vexatious that the traveller can meet with; it is a continuous series of ascents and descents, every one of which you think will be the last, but no—there is another and another, and still another, until one gets tired and wearied, and hopeless of ever coming to the end. Towards evening we *did* arrive at the end, and the unbounded view which presented itself to my astonished gaze was really worth all the trouble of getting there.

Looking away towards the east, and immediately beneath us, the eye meets range after range of hills, one beneath another, gradually growing smaller and lower, until ultimately they slope gracefully on to the Great Pampa of the Argentine Republic, which stretches away for hundreds and hundreds of miles, one immense (almost) level plain. The first impression of the

traveller in beholding this magnificent sight is, that he has suddenly come to the sea-coast, and that the vast pampa before him is an interminable ocean; to make the illusion still more complete, he beholds away towards the horizon ascending from the plains, various columns of curling smoke, which appear like so many steam-boats: the altitude at which he stands is so great that neither trees, nor houses, nor other tangible shaped objects can be distinguished.

From the last range of the "Paramilla" we began to descend on to the plains. It is a very steep, and not by any means a pleasant road, but nevertheless it must be done, and upon foot too; as the saddle would be constantly slipping forward over the mule's neck were we to ride, and the probabilities are that we also might follow the saddle and be accommodated with a "sitio" on the ground. About five P.M. we commenced the descent, tying up the reins and driving the mules before us. Towards dark we passed a small hut where

some miners were living (I believe Englishmen), and a little lower down, by the edge of a small stream, encamped for the night. We collected some wood and made a roaring fire, when we cooked our joint of mutton and enjoyed a good dinner.

About eight P.M. we were about to turn in, when we heard shouting and hallooing in the valley farther down; after a short time it ceased, and to our astonishment and alarm, about ten minutes afterwards, two "gauchos" on horseback came galloping into our encampment, threatening to ride over us, and swearing that if we did not give them wine, they would insist on our marching off immediately, as they were the care-takers of that estate. We had no wine to pacify these already half-drunken savages, and accordingly told them so, but they insisted, saying that we could not be travelling without some sort of liquor. I was sitting upon my bed, and, my rifle lying loaded beneath the mattress, I laid hold of it, and, jumping up, swore in the purest

“Castellano” I could muster that if they didn’t “clear out” (to use a Yankeeism), I would send a bullet through one of their skulls. My companions begged of me to be more moderate, as the gauchos were “diablos” with the knife and lazo, and would think nothing of cutting my throat; but was an Irishman, with an Enfield rifle in his hand, and a revolver in his belt, to be cowed by such “spalpeens?” Not a bit of it; so I reiterated the threat, accompanying it by bringing the rifle to the “present;” this had the desired effect, and the ruffians set off at full speed, yelling out most fearful oaths and threats to return with others and take vengeance upon us: they did not, however, carry out their threats, and we slept sound and unmolested till morning.

## CHAPTER VIII.

Precipitous Descent—Narrow Escape—Post of Villavicencia—Alarming News from Mendoza—Vegetation and Pasture—Fat Cattle—Sudden Change of Temperature—Breakfast in a Shady Spot—Hot Weather and no Water—Effects of Earthquake at Mendoza—Inhabitants sleeping in the open Air—One Solitary Hotel—Ruins of Mendoza—Utter Destruction of the City—Vestiges of Theatre and Churches—Horrible Scene—Unburied Skeletons—Photographing—Former Extent and Population of Mendoza—Buried alive—Narrative of the sufferings of one who escaped—Causes of the Earthquake.

*Sunday, May 4th.*—At four A.M. we started and commenced groping our way in the dark, still descending the dangerous and precipitous path. I recollect one part of this road, which, for the first time during the journey (except in the Cumbre), really startled me. It was still dark, and the route led us into a deep gorge, or more properly an immense

fissure in the mountain ; the rocks on either side rising perpendicularly to a considerable height. By the sound of my mule's feet I knew there was water beneath, which in some places was frozen, and consequently slippery ; in passing through one of these spots my mule came down and I with her, straight over her head, and had I not held on to the reins with all my might, I don't know where I might have "brought up," as the place was a mass of ice, and inclined downwards at an angle of sixty degrees at least. I regained my feet with difficulty, and determined to descend the remainder of the pass on foot.

At seven A.M. we came to a place called Villavicencia, which consists of two huts, in which the care-takers of the surrounding estate live. Here we learned that the town of Mendoza was in a state of siege, and the inhabitants all in arms, owing to the presence in the neighbourhood of some marauders, or "looting characters," who threatened to sack the place; we were advised not to proceed, as there was dan-

ger of our being robbed on the road, and my companions were evidently inclined to follow this advice, but I laughed at their fears and ultimately induced them to proceed. A little farther down past this post it is necessary to take a supply of water in one's canteen, as none is to be met with until close to Mendoza, about sixteen leagues distant. We took this precaution and jogged along at a brisk trot.

Vegetation is here most abundant, and fair pasture is to be had; we saw various herds of cattle grazing about on the mountain sides, looking fat and healthy. By ten o'clock we were fairly out of the mountains and down upon the plains; the road being covered with small sharp stones, and leading through a dense pigmy forest of *espino*, a species of thorn. It is cut up in many places by the mountain torrents, which rush down in the winter season with great force and violence, and in one of these dry courses we kept for a long time, taking advantage of the shade afforded by the high banks; for the sun having



shone out, the day became excessively hot. What a change from the temperature we had been subjected to for several days previously!

In one of these shady spots we halted and roasted a piece of mutton, which, together with a cup of tea, formed our breakfast. We started off for Mendoza immediately after, the road being still through the same kind of country, which continues to within a short distance of the town. The day was most oppressively hot, and we suffered much from thirst, no water being procurable, and we having consumed our supply at breakfast.

At about five P.M. we arrived at the "resguardo," or custom-house station, situate some three leagues from Mendoza, and having been reviewed satisfactorily, were allowed to proceed. From this point the effects of the fatal earthquake began to be visible: the few ranchos about are a level mass of ruins, the present habitations of the people being ramadas, or miserable huts made of boughs of trees and plastered over lightly with mud.

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Such is the dread inspired by the fatal catastrophe that no one of the survivors will sleep within a house, and all along the road may be seen the bedsteads and bedding outside, generally in the gardens and fields. Darkness came on soon and shut out from our view the still more extensive evidences of that night of destruction. At seven P.M. we arrived weary and tired at the "Hôtel de Chile," the only then existing house in Mendoza where one could get accommodation and food ; we were shown into a miserable room without furniture of any sort, and had to extend our mattresses on the floor.

*Monday, May 5th.*—I rose at an early hour and sallied forth to see and contemplate the ruins of the doomed city. The hotel is situate to the left of the "Alameda," or opposite to where the former town stood, and, together with a few other ranchos, constitutes the Mendoza of the present day. I walked along this fine avenue of poplars for about a hundred yards, and turned in to the right ; a few paces brought me into the nearest street, where I was abso-

lutely struck dumb and immovable with horror at the scene which presented itself! I had heard most lucid descriptions of the effect of the earthquake, and had seen some sketches of a portion of the ruins, but not the most remote idea of the reality had been conveyed to mind by the most vivid of them. I gazed along the whole length of that street: not a single house was there to be seen standing; all was a confused mass of "adobes," beams and bricks! The street was filled up on a level with what remained of the walls of the houses on either side, which at a glance accounted for the fearful number of victims—upwards of 12,000—entombed beneath the ruins on that fatal 20th March, 1861.

After gazing some time, and recovering in a measure my senses, I proceeded in the direction of the plaza: everywhere I turned 'twas the same; nothing met my eye but desolation and ruin! From the plaza I turned towards the north, and there saw the only edifice, or rather portion of one, that had remained

entire : it was the theatre, which, having had a considerable quantity of timber in its construction, remained partially uninjured. I ascended to the roof and got a fine view of the entire city. For a mile around on every side nothing but a chaotic mass of ruins was visible : the *débris* of a large city razed to the ground in an instant ! On the left were the ruins of what had been once a fine church, “ Santo Domingo,” the altar and a portion of the arch being the only remaining traces of its former sacred character. It had been constructed of brick and lime, and was a strong solid edifice, the proof of which might be seen in the immense adhering masses of masonry—some 12 feet square—lying about, and no doubt forming the tombstones of many devotees who happened to be in the building at the time of its destruction. Looking away towards the south might be seen the still partially erect walls of “ San Francisco,” another fine church which boasted of the largest bell in the city : this bell was pitched from its position to a con-

siderable distance by the shock, and stuck between two towers on the north side of the building; where it may be still seen, wedged in so firmly that all attempts at removing it simply by lifting have failed.

On approaching "Santo Domingo" in order to examine it more closely, I saw lying about its precincts several human skeletons, and portions of the human form protruding from beneath the heavier masses of masonry. I was almost sickened by the sight and moved quickly away. In many parts of the city I saw the same horrible exhibition—skulls, arms, legs, &c., lying about, some still undecayed: especially near a convent on the south side of the city. I spent some two hours in going over the ruins; crossing from point to point irrespective of street or direction, for almost all trace of the former is obliterated. At last, I retired to my hotel, meditating upon the dreadful catastrophe which had in a few seconds turned a gay and beautiful city into an enormous graveyard!

After breakfast, I got my camera and plate

box ready and proceeded to the theatre, from the roof of which I obtained three very fair photographic views, which, with one made in the plaza, formed a good addition to my stock of South American landscapes. In the evening I interested myself in obtaining the most correct and authentic information about the earthquake, and the former condition of Mendoza ; I learned that the city contained a population of some 16,000 souls, and that it had many very fine edifices, private houses, and hotels. Fortunately I met with an architect who had built several, and obtained a glance at some of his plans and drawings. The houses were principally built of adobes—bricks of a large size dried in the sun, and stuccoed and ornamented on the outside ; the doors and windows were very massive, and the roofs were all flat, in the Mexican “ Azotea ” style, which tended in a great measure to their total destruction by the shock.

A short time after my visit to Mendoza, I had the pleasure of conversing with an old

gentleman who had had the misfortune to have been buried beneath the ruins for more than five hours, and was eventually extricated by some friends. I will give his own account of the affair, and the impression it made upon him at the time.

He was paying a visit to some friends in a house situate near the Alameda, and at about half-past eight P.M. arose to retire. He stood at a table in the centre of the room, and was in the act of lighting a cigar, when the shock, preceded by a loud rumbling noise, was first felt ; it was slow for a moment in the beginning, but from the noise he concluded it was going to be something more than ordinary, so he rushed into the street and ran down the centre, intending, if possible, to reach the Alameda. He was accompanied by a most intimate friend, who was close behind him, and had only run some twenty paces, when he felt as if he had been struck a heavy blow on the back of the head, and was borne down to the earth in a moment. His hands were stretched out in

advance of his head, and, on attempting to rise, he found he could not even move a finger ; the weight upon his back appeared to him enormous, and with great difficulty could he breathe. His face was flat on to the pavement, and every time he respired, he inhaled a quantity of dust. Still his senses were all perfect, nor did he experience pain of any description.

His companion, who had also been thrown down close to him, called out for succour in a feeble voice, when he replied and begged of him not to waste his little remaining strength in useless efforts to obtain assistance, as no one would be likely to pass there for some time. The other responded incoherently, and by his voice evinced much suffering. In a few minutes all was over ! The spirit had fled !

My friend (whom we will call Don Domingo) now began to reflect on his own condition, and to consider by what means he could enable his position to be made known to some passer-by. He concluded that from the severity of the shock the entire town, or, at least, the



greater part of it, must have been destroyed ; and that in such case, the watercourse, or stream, in the Alameda must be obstructed by the fallen houses, and would naturally rise over the bank, and flow down through the streets ; consequently he would be drowned ! Then he knew that such great catastrophes are generally followed by conflagrations amongst the ruins, in which case he would inevitably be burned ! The possible, nay probable, termination of his existence by burning or drowning was to him a fearful contemplation ; but neither half so horrible as another—the inevitable fate which must await him in case of his not being found out by his friends. He knew that the town was infested with rats and vermin of all kinds, and that, sooner or later, they would not fail to find him out amongst the thousands of victims, entombed like himself beneath at least six feet deep of “ adobes ; ” this, together with the conviction that he must pine away day by day and little by little, and eventually die of exhaustion and starvation,

were the dreadful thoughts which rushed through his already heated brain, and nearly drove him mad.

He remained thus watching and waiting for nearly two hours, during which he never heard a sound from the outer world. Suddenly he thought he heard weeping and footsteps above him. He was right; and called out as loudly as possible for assistance. To his delight he was heard, and the person replied, but refused to render him any assistance, as he was engaged looking for his family, who had been also buried. Nearly another hour passed away without a soul passing. Almost interminable seemed that hour of misery and anxiety to the poor old man. At last he again heard some voices at a distance, apparently in dispute. They came nearer and were more distinct; he could distinguish the words, and heard the following: "Señor, es imposible! por aqui no se puede pasar el coche." (Sir, it is impossible for the coach to pass here). To his great joy, he recognized the voice as that of a coach-

man he had been in the habit of employing, and immediately called out to him.

“Gonzales ! Gonzales !” The man answered, “Who calls me ?”

“’Tis I, Don Domingo,” responded my friend. “I am buried here beneath the ruins, and cannot move : for God’s sake help me to get out.”

The man Gonzales, after ascertaining who my friend was, and marking the position, went in search of some tools to excavate, and at least afford him some air to breathe freely. He soon returned, and after half an hour’s hard work cleared a considerable space around my friend’s head, and finally removed the last brick which covered it. On the fresh cold air being suddenly admitted to him he fainted, and remained insensible for a short time. When he came to, he found himself half out of his late prison ; his preserver still endeavouring to extricate him with all his strength : the pressure was, however, so great upon his legs that it required their united efforts to accomplish

it. He made an attempt to stand upright, but his legs refused their office, and he dropped backwards, exclaiming that he could not walk. Gonzales now told him that he had done all he possibly could for him; and said that as some of his own family were missing, he must return and search for them among the ruins.

Don Domingo expressed his eternal gratitude for the service rendered him, and begged to be left as he was; some friends were sure to pass soon and remove him. He now managed to crawl up out of the funnel-shaped hole, and sat upon its edge, endeavouring to distinguish surrounding objects in the obscurity of the night. He could make out that on one side not a house had been left standing, while on the other an isolated portion of a high wall still remained, tottering and wavering with every repeated shock; for during the whole night 'twas almost a continuous series of earthquakes, at intervals more or less severe. Should the wall happen to fall in his direction,

which appeared the most probable, it would not only have buried him a second time, but no doubt have crushed him to death. He therefore made every possible effort to move away to some distance; but his legs and body felt paralyzed, and he was obliged to remain in that position until morning.

About sunrise several persons passed by, but all refused to aid him in removing to some safer place; eventually two young men, a German and Spaniard, took pity on his forlorn aged appearance, and carried him on their shoulders to the Alameda. There he remained for two days, without food or water, exposed to the burning rays of a semi-tropical sun. On the third day his friends found him, and had him carried to a house some few leagues out in the country, where he remained for twenty-one days before medical assistance could be procured; when it did arrive it was too late. The poor old man, though suffering no pain, is still a cripple, hobbling about on crutches, and awaiting pa-

tiently the expiration of the few short years he has to sojourn among us. Such, reader, is one of the many incidents which might be related of that fearful night, when 12,000 souls found a sepulchre beneath the ruins of the Herculeanum of the Pampas.

Let us refer no more to this sad subject in a moralizing point of view, but conclude our notice of Mendoza and its destruction by endeavouring to account for the occurrence of an earthquake almost purely local in its effects, but at the same time one of the most fatal on record. There are numerous hypotheses and theories concerning earthquakes and their causes, which it is not my intention to discuss; I will merely state what is generally accepted as being nearest the truth, and try to explain why that of Mendoza was so fatal in its effects.

Earthquakes are usually confined to volcanic countries; their occurrence in districts non-volcanic is rare, geologists being of opinion that the accumulation of volcanic gases be-

like so great as it was experienced. \*To demonstrate this, take a large book, the cover of which may be supposed to represent the district of Mendoza, and carefully insert between the leaves in several places particles of gunpowder or other explosive matter, connected by a train one with another, and capable of being exploded simultaneously; then close the book, laying it flat upon the table, and suppose its leaves to represent the geological strata. Now proceed to build a house of cards upon the cover, and when finished ignite the train by an electric spark; the result will be an explosion, and the gases generated by such will expand and find an outlet by violently raising

\* The theory here propounded is but one of the many sought to be established as the true cause of earthquakes; we have also the *steam explosion* theory, or that of water dripping on to a mass of matter heated to a very high temperature beneath the earth's surface, which being thereby converted into steam, and from the enormous pressure of accumulated masses produced by continuous generation, is supposed to explode and find vent through the interstices of the geological strata, causing a shock of earthquake. There are many others fully as plausible, but I doubt very much that we have yet arrived at the *true* cause of this terrible calamity.

up the leaves and cover, thereby upsetting and destroying the house of cards. Thus you have an example on a small scale of what occurred at Mendoza.



## CHAPTER IX.

Military Music—The Soldiers called out—Address of the Governor—Costumes of the Troops—The *chiripa*—New Town of Mendoza—Modern Houses—Fate of the British Vice-Consul—An English Carpenter's experience of the Earthquake—Stage Coach and Team—Brushwood and Soil—Journey to San Juan—Post-houses and Provisions—Site of San Juan—River—Wooden-leg Hill—Town and Cathedral—Population—Schools—Products of the Province.

*Tuesday, May 6th.*—I was awoke at an early hour by the sound of *martial music*, if a cracked kettledrum and two abominably toned trumpets can be called such; and on sallying forth encountered a number of would-be military looking characters rushing furiously towards an extensive *rancho*, which I conjectured was the “cuartel,” or barracks of the garrison. On inquiry I learned that the Governor had sud-

denly determined upon reviewing the "troops," and appealing to their bravery and patriotic feelings to defend his august person and the town against the expected attack of the looting rabble before alluded to. In the course of half an hour a large crowd was assembled in the Alameda, and the Governor made his appearance with a numerous staff of officers; upon which the band struck up something in the style of "See, the conquering hero comes," which, though not highly symphonious, no doubt served the purpose just as well.

There were some three hundred men, principally cavalry, armed with lances (but on this occasion on foot), drawn up in line, divided into companies and in open order for inspection, with two pieces of field artillery, six pounders. The men were a fine-looking set of fellows, but some being in uniform and others without, they presented a more motley appearance than a regiment of Bashi-bazooks. The "chiripá" and "poncho" were almost universal, and though I must admit they form

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rather a pleasing and picturesque costume, it is by no means a military one. The chiripá is rather a complicated garment to look at, but really very simple, being merely an enormously wide pair of trowsers, or drawers, made of calico, embroidered at the lower extremities and bound with fringes. Over this is worn a poncho, or light shawl, passing between the legs, the four corners of which are braced up and fastened by a belt around the waist.

After executing a few manœuvres, his Excellency expressed himself highly satisfied with their appearance, and harangued them for some time, begging of them to be prepared at a moment's warning to turn out and defend their homes! They responded by boisterous "vivas!" and demanded to be led against the enemy at once. His Excellency, however, did not seem to see the necessity of such a proceeding, and dismissed them accordingly.

It being still early, I strolled about the new town, where some attempts at building houses were being made, evidently with the view of

avoiding a repetition of the fatal consequences attendant upon the destruction of the former one. The streets marked out are wide, and perfectly straight, running at right angles, and the houses consist of a framework of wood, with laths nailed on the outside and plastered over, thus forming a species of close cage, which should at least remain uninjured by a shock of earthquake.

While standing looking on at some carpenters at work, I was struck by the appearance of the foreman as being decidedly "British," and on venturing a question at random in English, was confirmed in my conjecture by his reply. He told me he had escaped the earthquake by a miracle, and was making money fast by erecting houses. I asked him if there were many British subjects then living at Mendoza, and whether many had been killed during the earthquake; his reply was, that at present a number of Englishmen were about Mendoza, but not so many as before, although very few had been killed: the principal, and most

regretted of them being poor Mr. Green, our vice-consul, who was supposed to have been buried beneath the ruins in a street close to the plaza. He added that he was one of a party who had sought for his body in every direction without success, and that at one place which had been indicated as the spot where Mr. Green was last seen before the shock, they had cleared away the ruins and rubbish for a distance of ten yards, and in that short space encountered twenty-eight victims ! neither of whom was poor Green. They were eventually obliged, from the insufferable stench, to give up the search.

After breakfast, I proceeded to the coach-office and secured my seat for San Juan a distance of some fifty leagues to the north. Being told that the coach started at 2 P.M. the same day, I arranged my traps, and having said good-by to my late companion of the road, who was to have proceeded to Rosario and Montevideo, jumped up beside the " conductor," with my dog at my feet. The coach was drawn

by five horses, yoked on in the most extraordinary fashion by simple traces of hide, one to every horse, hooked on to the girth of the saddle; a postilion on each horse. We set off at a full gallop down the Alameda, and soon found ourselves beyond the immediate precincts of the town.

For some miles the road led us through a highly cultivated suburb, and eventually struck out upon the wild open country covered with a species of brushwood called "jume." This plant contains a large percentage of potash; the ashes are used in the crude state by the soap-makers, a large number of whom exercise their calling in San Juan and Mendoza. The soil hereabout is what is called *Salitrosa*, being highly charged with the nitrates of soda and potash; so much so that in some parts it resembles snow, the entire surface being covered, and perfectly white. The road soon becomes a mere track, and continues very similar until near the town of San Juan, passing through a

semi-wooded and barren district, in which no water is to be found.

The journey to San Juan from Mendoza occupies about two days and a half, there being four inhabited and two uninhabited posts. The former are—Jocali, distance about eleven leagues; Huanacache, twenty-two leagues; Pocito, twelve; and San Juan, five. Between Jocali and Huanacache, the road is very bad and heavy, and sometimes dangerous from thieves. The land on either side being uncultivated from want of water, the traveller must supply himself with sufficient of that element to last during the day. At the post-houses the conductor supplies you with the usual dinner, asado, for which you have to pay him at the end of the journey. Bread, tea, sugar, &c., must be taken by oneself. The fare is 13 dols. (hard dols.), and 1 dol. additional for every 25 lb. of luggage. The post-houses are tolerably good, but I cannot recommend them for cleanliness. Every passenger takes his own

bedding, and generally prefers sleeping outside, the weather being usually very mild.

About noon of the third day from Mendoza, we arrived at the last post-house—Pocito, close to which we passed over the battle-field, where but a few months previously was slaughtered a large number of San Juaninos; the united forces of the Provinces of San Luis and Mendoza having come down to invade their territory and redress some so-called political grievances. From here into the town of San Juan the road is very good, and takes us through a well-cultivated and apparently most flourishing district.

The town is situate upon a level plain, the nearest hills being those of Zonda, about five leagues distant, which are spurs of the lower range of the Cordillera, and consequently lie to the westward. On the east, some seven leagues off, there is another range of hills about thirty leagues in length, and twenty wide, rising to a height of some 3,000 feet from the plain and completely isolated. This



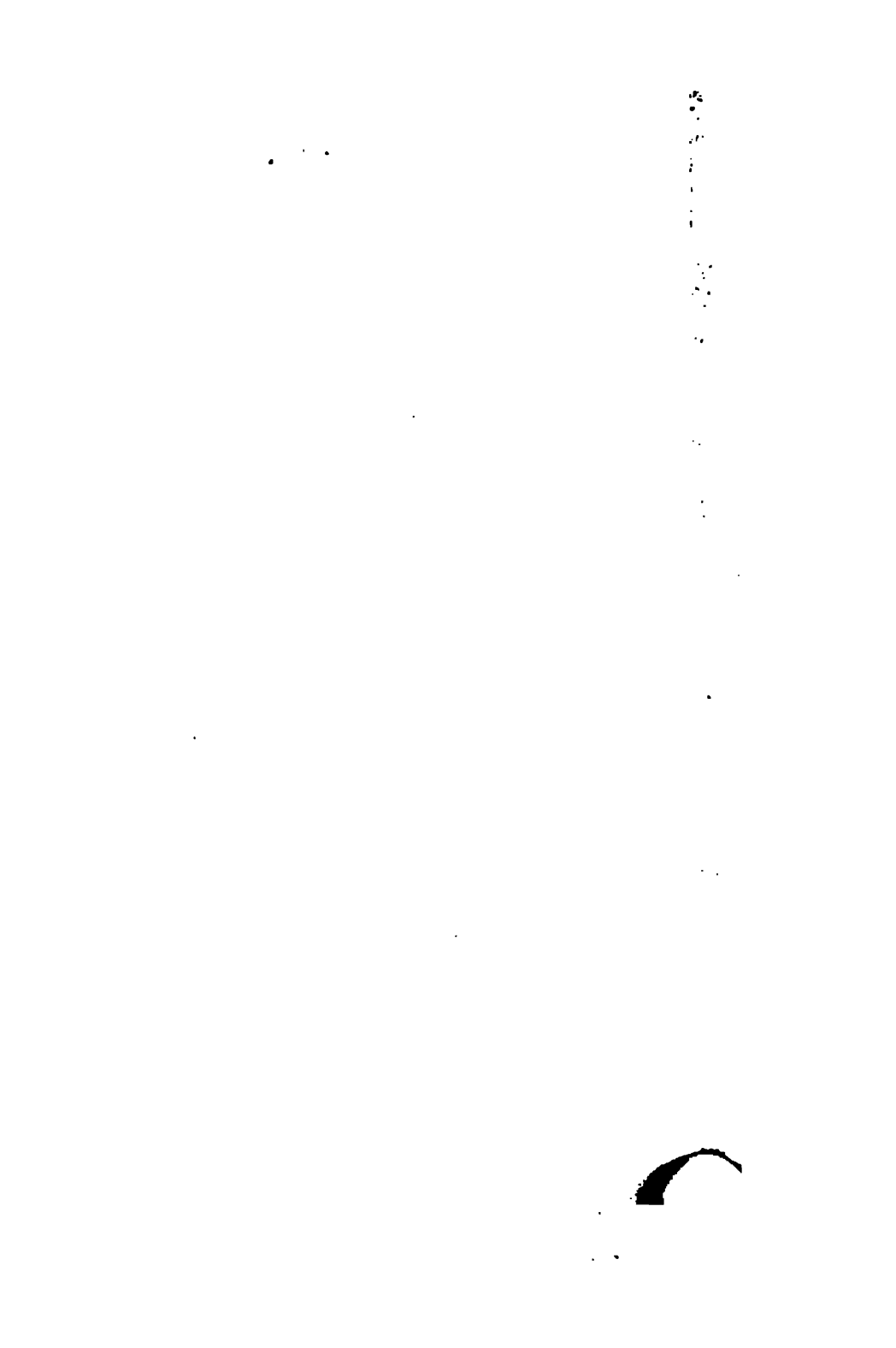
range is at the other side of the "Rio de San Juan," and around its base on the west side are numerous well-cultivated *Hincas*, or farms, and forms the important agricultural district of Cauçete. The hill boasts of rather an unique name, *Pie de Palo*, or, "the wooden leg," from what source derived I am unable to say. The river of San Juan is pretty wide and rapid, its size being something similar to the Rio de Aconcagua, in Chili, with which the reader is already acquainted. To the north the view stretches away uninterrupted for many leagues over a level and partially cultivated plain, irrigated by artificial canals made from the river, as rain is rather a rare commodity in those districts.

The town is not visible until you are virtually within its precincts, when a few minutes' drive takes you into the plaza, which forms the centre. The houses are nearly all low, with flat roofs, and in the old Spanish style of architecture, dull and uninteresting. The cathedral in the plaza is a very fine old building, and seems to have

withstood many hard shakes from earthquakes, and at the hands of man ; the walls being partially cracked and dilapidated. There are several other churches in the town, but none of any peculiarly imposing appearance, many of them being in an unfinished state.

The population I should say ought to amount to some 12,000 to 14,000 souls, of whom 300 to 400 are foreigners—principally Italians and French, but there are also many Germans, and some English. There are several schools, and one preparatory college where classics, mathematics, drawing, history, French and English are taught ; and soon after my arrival there was established a laboratory and chemical class, which, from the mineral resources of the province, is likely to be one of the most advantageous. The province produces a large quantity of fruit and wines, and possesses a magnificent climate. The people are most amiable, attentive, and I must say that I have never met with more real and general hospitality and kindness in any place I

have visited in South America. I remained some six months in the province exploring and examining the mining districts, which are numerous and most interesting.



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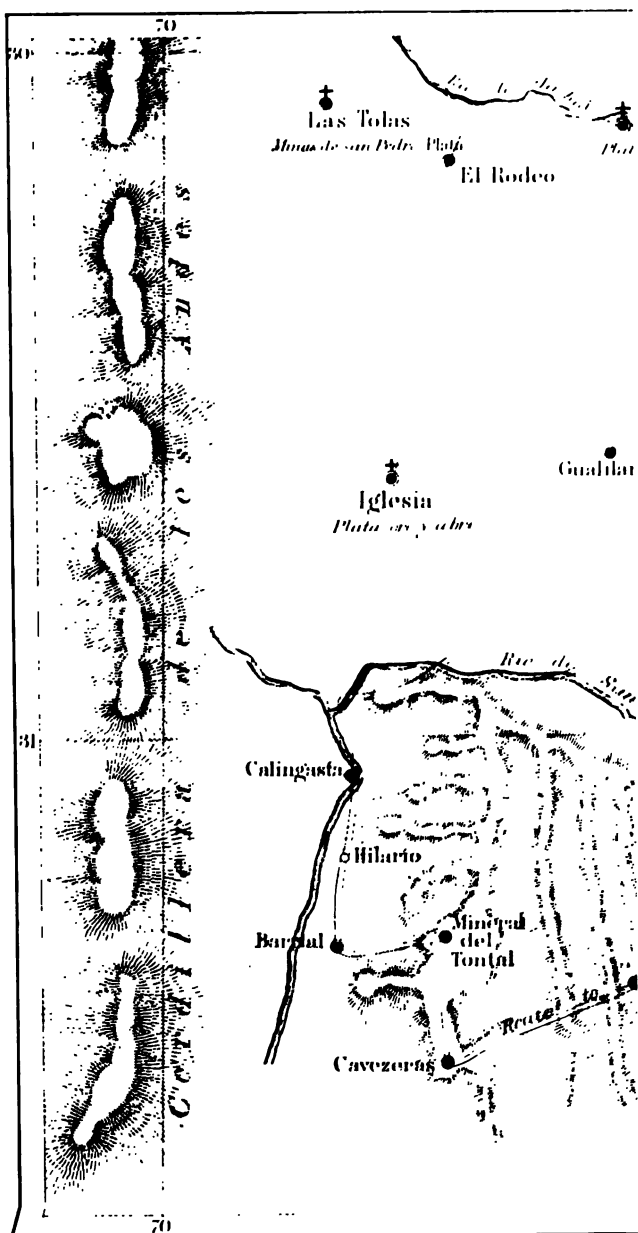
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## CHAPTER X.

n Juan—Military Execution—Visit to the  
-A Government House allotted to me—Life at  
-Preparations for my first Expedition—Kind-  
Governor—I start with my Party—The Lazo  
y in throwing it—The Bolas—Route to the  
-Mules should be shod—The Tordilla, or  
s.

W return to the day of my arrival  
1, and proceed to describe as briefly  
the various subsequent events,  
y consider of sufficient importance  
he general reader.

o P.M. we turned into the plaza at a  
with eight horses attached to the  
the merry horn of the conductor  
ome lively notes to announce our  
the scene which was being enacted  
ment was anything but agreeable.





A number of troops were drawn up, forming three sides of a quadrangle, and in the centre stood the Governor and staff; a little in advance were stationed twelve soldiers, and in front of them a culprit, who was evidently about to be executed. In less than five minutes the order to fire was given, and in a moment afterwards the wretched malefactor was no more. I afterwards learned that he was one of a large gang of robbers and assassins which had been recently dispersed in the vicinity of the town; several crimes were proved against him, and he was very justly condemned to suffer the utmost penalty of the law.

I alighted at the Hôtel de France in the plaza, and after shaking off the dust of travel proceeded to the house of his Excellency the Governor, my much esteemed friend Don Domingo F. Sarmiento, where I was received with every distinction and courtesy. I found that my arriero had just arrived from Uspallata, and brought my luggage, &c., in first-rate order.

I was soon afterwards shown into the apartments which I was to occupy in one of the Government houses, and with which I was delighted. There was a beautiful garden in front of the house, planted with flowers, palms (the date), orange, lemon, and tamarind trees, &c., which formed a delightful shade from the sun, and threw out a delicious perfume. Here I took up my quarters during the short time I had to spend in the city, my duties of Inspector-General of Mines requiring my presence elsewhere.

I will not bore the reader with a detailed account of life at San Juan, but will generally remark that I passed it very agreeably between banquets and balls, “tertulias” and private theatricals, with grand parades, reviews, and fêtes champêtres. I hope to return soon, when I dare say there will be a repetition of those festivities, as I trust to be able to take with me the machinery and *matériel* necessary for the development of the mineral wealth of the province; which is enormous, but at the present

moment of comparatively little use to the owners, owing to the want of means of reducing the ores and extracting the precious metals.

After acquiring all the necessary information concerning the mining districts, and being sufficiently rested, I announced myself as being ready to start on the first Tour of Inspection. I determined to take that of Tontal, situate at a considerable distance from the town, and in close proximity to the Cordillera, at a height of at least 6,000 feet above the sea level. I asked for an escort of mounted police or cavalry, and a first-rate guide, with mules, provisions, &c., intending to be absent for from twenty to thirty days. The Governor gave me an order for the immediate preparation of the expedition, and kindly lent me his own campaigning tent, a capital one, which formerly belonged to the president, General Mitre, and was used by him in the campaign previous to the battle of Pavon, fought a short time before. I had all my sporting traps put in good order, being informed that I might expect to find huanacos, ostriches,

hares, partridges, &c., on the road and about the mines. After considerable delay in getting finally arranged, I was glad one delightful morning to see the officer of the escort come to my quarters and announce all to be ready for starting on the following day.

At an early hour, then, we were on the move, and presented a very respectable and picturesque appearance marching out of the town, accompanied for a short distance by his Excellency the Governor and staff. My party were all well mounted on mules; and after saying good-by to our friends, I arranged my little troop in marching order, placing an advance guard of two at the proper distance, and leaving the same number to bring up the rear. We started off at a brisk trot in the direction of Zonda, S.S.W. of the town. Not being pushed for time, I determined to do the journey by easy stages, and amuse myself on the road by bagging any game which might present itself. Some of my men had Minié rifles, and each carried the inseparable *lazo* and *bolas*, or *bolea*-

*dores*; arms much more effective in the hands of a genuine “gaucho.”

The *lazo* is a line of plaited hide, generally about six fathoms long, and having at one end an iron ring, through which the other end is passed, thereby forming a noose large or small at pleasure. On the other end is a sort of open noose with a button, which can be made fast to the *montura*, or saddle, when about to fling it. It requires long practice to be able to attain that dexterity for which the *gauchos* are celebrated with the *lazo*; and I would not recommend a novice to try the experiment while on horseback, having myself received a pretty severe lesson the first time I attempted it. The horse naturally supposes that you are quite *corriente* in the affair, and takes the necessary steps to secure you the prey; but you, if unaware of his intention, are generally left sprawling on the ground, or perhaps entangled in the *lazo*, which is much more dangerous.

The *bolas* are a different weapon; they are of several classes, the large light ones for catching

domestic animals, and various smaller ones for different game. The class generally used for huanacos is the largest of the small class, and, if well directed by a skilful hand, is a most deadly weapon. The form of the "bolas," when extended, is precisely similar to the arms, or insignia, of the Isle of Man, namely, the three legs radiating from a common centre ; at the extremities are round or egg-shaped stones, sewn in hide and plaited in firmly to each of the thongs. To use this weapon you lay firm hold of one of the balls and wind it round your head, increasing the velocity every turn ; by this means the two balls become extended, and when sufficient force and velocity is attained to give an impetus necessary to reach a distance of from forty to fifty yards, and sometimes up to sixty, you let go the bolas ; of course, taking aim as best you can. When the bolas strike the object or animal, whether it be about the legs or head, they become so entangled from the rotary motion and velocity, as to bring down the game and leave it completely at your mercy.

The hunting-knife is all that is necessary in addition to your horse to complete the *tout ensemble* of the South American hunter. No ammunition or firearms being required, it is certainly about the most inexpensive, yet effective, equipment I know.

Our route towards the Cordillera from San Juan led us through a rather picturesque part of the country, thickly covered with underwood, but almost entirely devoid of pasture, the ground being covered with small angular stones, and no beaten track visible. For such districts the mules ought to be shod, as otherwise they will soon become foot-sore, and consequently worthless. I mention this because it is not usual to shoe horses or mules in the ordinary transitable districts of South America ; and I would strongly recommend the traveller to *insist* upon *his own* mule, at least, being shod, irrespective of place or distance. If one be allowed a choice of animals, I would decidedly recommend that class known as the *Tordilla*, or gray mule, which I have almost invariably

found to be not only the most enduring but the most sagacious and easy. In the present instance I was mounted on a magnificent one of this class; and for swiftness, and I must add cunning, in trying all sorts of manœuvres to "give me the slip," and escape back to her former owner, I never met her equal.

Near sundown we arrived at an estancia, or cattle post, called Maradona, situate on a sloping plain at the base of a high range of hills, across which our route lay. Their snowy peaks indicated that we might expect severe weather on the other side; and also that we should probably meet plenty of game about the plains, as the huanaco and ostrich are not over partial to cold weather and bare mountains. Seeing that the herdman's house offered us a fair shelter for the night, I called a halt, and my little escort began accommodating themselves and their animals around the little hut as comfortably as circumstances permitted. As I intended starting early on the following morning, I gave orders that the



mules should be all tied together with lazos, in order to prevent them roving too far, or probably returning to San Juan; which precaution I found was nevertheless insufficient to avoid the latter evil, and *my* mule, "as luck would have it," took French leave and *did* return, carrying with her my lazo: or rather, the best part of it, she having managed to cut or snap it off in some way. I had no reason, however, to regret this circumstance as it afterwards turned out, for it afforded me an opportunity on the following day (while awaiting her being brought back) of enjoying some of the finest sport I have had in South America.

## CHAPTER XI.

Ostrich and Huanaco Hunting—Warning of Game in sight—

A Herd of Huanacos—Their Habits—Mode of driving them—They are surrounded, and charge—Effects of the Rifle, and the Bolas and Lazo—Five Huanacos bagged—Another Chase with Greyhounds—Ostriches in sight—A Chase and its Results—Huanacos brought to bay—Spoils of the Chase—Mr. Bollaert's description of the Huanaco—Mode of preserving Flesh and Skins.

I WILL here endeavour to convey to the reader some idea of an ostrich chase and huanaco hunt on the Pampa; but I fear it will be a poor attempt, as the finest language, at least in my estimation, would fall far short of expressing in sufficiently strong terms the excitement and enthusiasm attendant upon such a rare treat to a European sportsman. About 8 A.M. my men had their mules all saddled and ready to mount, awaiting the

return of mine; meanwhile I was engaged in brushing up my Enfield rifle, and preparing for whatever might turn up in the shape of winged or other game, as it threw small shot almost as well as a smooth-bore fowling-piece.

Suddenly away towards the mountains on the left we heard the long sounding halloo-o-o of the gaucho, which resembles the braying of the mule, and is really intended to mislead any animal which may be within hearing; this is the usual signal to convey information to their comrades of the presence of game in their vicinity, and a warning to look out and be prepared with lazo and bolas for whatever animal may turn up. The herdsman (a perfect gaucho) immediately sprang up, and replied in a similar style, and mounting his horse which stood by, shouted to us to follow him if we wished to see sport. I slung my rifle across my shoulder, and jumping into the nearest saddle gave the word to the men to mount and be off.

Away we rode after the herdsman, not well

knowing why or wherefore, but conjecturing at least that something in the shape of game had been sprung. We were not long left in doubt, for on gaining a slight eminence, and rising in the stirrups, I distinguished a long way off—at least 1,000 yards distant—the long slender necks of some thirty to forty huanacos, standing perfectly still, and, as is their usual custom, listening and sniffing the air, to try and discover their natural enemy—man ; who, together with the canine species, are about the only objects they regard with alarm. You may distinguish a single huanaco at a very great distance indeed ; for their peculiar colour, especially when among green shrubs or brushwood, renders them most distinctly visible. Another circumstance also tends to make them very conspicuous : it is their habit of being continually on the watch, and always seeking the most elevated part of the plain or mountain, from whence they command a view of the surrounding district ; they are, therefore, usually prepared for a “ bolt ” in the most favourable

direction, and they select with extraordinary foresight the passes through which it is most difficult for man to follow them.

Knowing their peculiar habits, I determined, having the means at my disposal, to surround them; forming a wide circle of men and gradually closing in towards the centre, when we could at least knock over half a dozen. I made signals, therefore, to the gauchos, of my intended movements, and ordered the men to deploy off to the right and left, and form the circle. The gauchos were delighted at this movement, and evidently calculated on having a grand match of lazoing and boliando, for they prepared all their traps; each man carrying two or three sets of bolas and a lazo.

The huanacos seemed rather puzzled at our extraordinary movements, probably never having seen so many men together before, and some of them showed signs of bolting; but the men kept closing in beautifully, and dodged them whenever they appeared to gain ground in escaping. Little by little the circle became

smaller, and *poco à poco* our game became more alarmed; rushing headlong all together for a short distance, now in one direction and now in another, until eventually they saw themselves completely surrounded and enclosed within a space of about 200 yards in diameter. My finger was itching to press the trigger, and let drive in amongst them, but prudence whispered "not yet." Still closer and closer, and still more frightened and excited, they began emitting that peculiar sound approaching the neigh of a foal, and spitting about violently, as they do when enraged.

At last they made a final effort and a determined charge all in one direction, the opposite to where I was. I could refrain no longer, so let drive at a distance of about 130 yards; one tumbled over, for it was impossible to miss such a pack. Almost simultaneously, whiz! whiz! went the bolas and lazos of the two gauchos who were on the side where they bolted; and I must say it was really fine to see with what precision those fellows threw their

weapons, as deadly in their final results as my Enfield bullet. They singled out those animals most isolated from the flock, some of which must have been at least sixty yards distant from the thrower, and no missile could have been more beautifully directed : the tall powerful forms of the gauchos standing upon their toes in the stirrups, and swinging the bolas around their heads with tremendous force and velocity, then letting them fly at the precise moment, was a striking sight. In a few seconds the huanacos might be seen stumbling and struggling to free their legs from the closely and firmly entwined thongs ; but their efforts were useless, for the more they struggled the more tightly they became bound and entangled, until eventually they were borne down to the earth fatigued and panting. There they lay completely at the mercy of the gauchos ; who with one peculiar gash of their never-failing “ macheta,” or hunting-knife, gave the *coup de grace*, and the game was bagged.

Out of the flock we managed to get five—

magnificent fellows, almost as large as stags. I left two men in charge of them, and determined to follow up the pack and get another shot; for I was not at all satisfied with my share of the hunt: only coming off the same as my "gaucho" friends, and with an Enfield in my hand, I felt ashamed of myself. It now became a matter of swiftness and caution to come up with them; they being frightened at our extraordinary behaviour towards them in the first instance. Away we went then at full speed, all scattered over the plain, each endeavouring to take the lead.

We were now joined by another gaucho, who had two half-bred greyhounds, swift and strong looking brutes, just the thing for such ground and game. After ten minutes' hard chase we perceived that our game was taking to the hills; in such case we should probably be thrown out altogether and not get a second chance of coming up with them. Our new companion being well mounted, struck out nearly at right angles to our course, and gained



a small hill, along the summit or ridge of which he still kept up the pace, with his dogs to heel. He was well acquainted with the ground and knew exactly the course to pursue in order to double the game, but he was, in this instance, a few seconds too late; they gained the hills, and in a moment were out of sight: at least to us. We were about to give up the chase when our friend of the dogs signalled us on with violent gestures, evidently quite delighted with the turn affairs had taken.

He halted till we came up, when he informed us that the game had gone beautifully into a trap, and that if we managed well we might secure the whole flock; there being but a narrow outlet from the summit of the hills on which we stood. It was an extensive plateau, and appeared to me to stretch away for miles towards the high range of hills beyond. The huanacos were some 1,200 to 1,500 yards off, all standing and gazing back at us; apparently defying us, now that they had gained their native fastness,—the mountain. I told

the gaucho to give his orders, as he knew the ground, and direct us how to proceed. He said we might go right at them at as killing a pace as we liked, and the faster the better, for our game was almost sure; so away we went, nearly all in a line, yelling and hallooing like so many savages. Of course the huanacos bolted immediately; but they still kept on towards the higher hills, and no doubt thought themselves safe. I thought the same, and that we were about to lose them, so, unslinging my rifle to have a long-range crack at the entire flock, I pulled up to take aim, allowing my companions to go ahead.


I had scarcely stood a moment when a wild halloo reached me, and a general cry of "Abestruses!" "Abestruses!" burst out from all my men. And, sure enough, there were two fine ostriches scampering away to the right, about 400 yards off. Some of the men struck after them, and I followed suit; but the brutes, with their long and powerful legs and using their wings to accelerate their speed, soon left

us a long way behind. We persevered, nevertheless, and to our delight saw the huanacos doubling down at right angles to their former course, and evidently about to cross that of the ostriches. Now was coming the critical point, and every one was on the *qui vive*. I must confess the sport began to grow exciting, and I plunged in the spurs with all my might, whipping and shouting at my unfortunate animal, which I ought to have recollected was not one of Asheton Smith's stud.

In a few minutes the ostriches and huanacos met, perhaps the one startling the other more than *we* did either; the result was a complete right about, on the part of both, and a full stop. Now was our time to gain on them; and gain we did a considerable distance, coming within about 300 yards of them. To my astonishment the ostriches advanced towards us! I pulled up to alight and fire, and called to the men to halt, which they did; yet on still came the great gawky birds, at every step clearing about a yard and a half of ground;

but in such a zigzag style that I could not cover them steadily for a moment. At last I fired, and of course missed (as I usually do). On they still came and the bolas seemed now to be in requisition. I shouted to the gaucho to let fly at them, but he shook his head and said, "Todavía no, señor" (Not yet, sir). I mounted again and dashed towards them, in order to try a closer shy with the bolas; but just as I considered the opportunity a good one, the ostrich doubled and went off at a tangent, to my intense disgust and the amusement of my men.

We were now within fifty yards of them, all yelling and diving in and out through the bushes; for such game for doubling and turning I have never met with. At one moment you feel sure that you've got him going in a straight line, at full speed, when suddenly he wheels right round and leaves you to shoot ahead twenty or thirty yards before you can turn. I was "sold" several times in this way, and eventually gave up the bolas as a bad invest-



ment, and took to my revolver. We were now six of us after the ostriches (the remainder having gone after the huanacos), and frequently were within twenty yards of them. I fired twice and missed, but the third time I was successful, and had the gratification of seeing one go over and cock up his toes. He was a splendid fellow, and his feathers and skin repaid me for all the trouble I had in bagging him. My men followed the other for some distance, and the chase was certainly most amusing; now that I was a looker-on, it appeared to me in another light altogether, and caused me to laugh heartily at the "*sells*" of my companions, every moment turning and dodging about through the bushes. Eventually he gave them the slip and disappeared amongst some high shrubs impenetrable to a man on horseback: thus ended our ostrich chase.

To return to our huanacos. The dogs were let on to them and were fast running them down. The plateau was almost completely surrounded by a natural deep fosse, formed by

the mountain torrent in the winter season ; its depth was considerable, and certainly too much of a jump even for a huanaco. Thus they were run round and round the plateau, the men gradually closing them in, and limiting the space to a narrow strip along the edge of the precipice or fosse. The animals were apparently becoming desperate, seeing themselves thus closed in, and as the dogs and men approached nearer and nearer, they sprang towards the edge and retired again, daunted by the depth beneath—some twenty-five feet to the bottom, which was covered with large boulders and rough angular pieces of rock. At length, being pushed to the last extremity, the dogs already within a few feet of them, one sprang over, followed soon after by another, and another, until all but about ten had passed. The men now came up close upon them and began throwing their lazos and bolas ; the latter took effect on one, which sprang into the air and rolled over and over on the ground, until coming close to the

precipice, it tumbled down, carrying with him one of the dogs which had laid hold. The excitement became general amongst the men, and each advanced to secure one ; but we were disappointed, for in a body the whole pack went over and landed below with a "sough," which boded no good to their osseous structure.

We all stood staring at each other like so many would-be criminals defrauded of their victims. After a moment's pause we rushed to the edge, and saw the carcasses of two lying beneath ; one still struggling, and evidently gasping his last breath, the other perfectly still, with the poor dog lying beside it, and to all appearance dead. We were obliged to go round a long way to descend and secure the game, which we did, and with much difficulty dragged them up to the plateau ; then stretching each one across a mule's back, we returned to the hut, bringing seven huanacos and one ostrich : of which latter I must confess I was not a little proud.

Having described a huanaco hunt, I think

it may not be amiss to give the reader a little insight into what sort of animal the said huanaco is. I am indebted to my friend William Bollaert, Esq., F.R.G.S., &c.,\* an old South American traveller, for the following clear, concise, and, I must add, correct description of that animal. Speaking of the llama, alpaca, and vicuña, he says, as they have had the generic of Auchenia (from the length and slenderness of the nape of the neck) given to them, he does not see any reason why the huanaco should not belong to it also.

The huanaco is larger than the llama, but of a more delicate figure; colour, pale red; belly and legs white; its skin covered with fine wool and hair. It is a wild animal, but if caught young, may be partially tamed and domesticated. It is killed for its flesh and skin. If molested, even in its tame state, it sends forth a shower of saliva with some of its food, which has an unpleasant odour. It is called

\* See valuable paper on the Natural History of the Llama, Alpaco, Huanaco. and Vicuña.—*Sporting Review*, Feb. 1863.



“ Luan ” by the Chilian Indians. It measures, when full-grown, five feet from the bottom of the hoof to the top of the head, and three feet three inches to the shoulders. It has been thought by some zoologists that the llama was an improved huanaco ; but this is *erroneous*. On the neck, back, and thighs, the huanaco is of a uniform reddish brown colour ; the under part of the body, the middle line of the breast, and the inner side of the limbs, are of a dingy white ; the face is dark grey, and the lips of a clean white ; the wool is shorter and closer than that of the llama, and it is of nearly uniform length on all parts of the body.

The huanaco is met with all along the entire range of the Andes, from Colombia to the Straits of Magellan ; sometimes alone and in pairs, but more frequently in flocks of from 10 to 200. The male is generally on the watch, and when danger is near, he gives a sort of squeal—a peculiar sound resembling the neighing of a startled horse—when the whole pack take flight, and gain a place of safety. It is diffi-

cult to trace the derivation of the name huanaco. In the Indian languages, Quichua and Aymara, it appears to mean a wild animal, or an animal that runs fast. In Quichua the verb to *run* being *hauvrachani*.

Having arrived at the house we proceeded to skin and cut up our game, selecting the most delicate morsels to be taken with us on the march. In these regions of South America the climate is so dry that no fear need be entertained of the flesh or skins becoming putrefied ; all that is required to preserve either is to extend it on the ground, or upon stakes, and allow the sun to have full play on it for several hours ; it is then perfectly cured, and only by being wetted or damped will it show signs of decay. Towards evening I had the satisfaction of seeing my mule brought back by one of my men. He found her comfortably located amongst a number of others on an estate close to the town of San Juan, and after considerable difficulty succeeded in securing and carrying her off.

## CHAPTER XII.

Partridge-Shooting—South American Partridges—A drowsy *reveilé*—An early Start—Sunrise over the Andes—Habitable Caves in Boulders of Stone—Dangers of the Tontal Range—Furious Wind—Signs of Mutiny—We return and seek Shelter and Fire—Unwholesomeness of Huanaco Meat—Winds on the Andes—View from the Tontal.

It being too late to start on that evening, I determined to remain till the following morning, and by an extra early march be enabled to cross the inhospitable-looking range of snow-capped hills which stood between us and the valley of Barrial, the nearest inhabited and cultivated district to the silver mines of "Tontal."

About an hour before dark I sauntered forth with my Enfield, charged with small shot, to seek some winged game, and not fifty yards from the rancho sprung a brace of partridges as large as guinea-fowl, and had the satisfaction

of bringing down one. In the course of half-an-hour I made a very respectable "bag," having secured five out of seven birds shot; two, being but winged, escaped in the dark among the bushes, and not having my dog at hand, I lost them. It must be recollected that in such dry barren districts where rain seldom or never falls, it is almost impossible for a dog, however fine his nose may be, to find or follow up birds; consequently the sportsman must keep a sharp look-out, and in nine cases out of ten become his own retriever.

I have noticed in South America four distinct species of partridges, but all belonging to the same family. On the plains in Chili, we find a partridge somewhat resembling our common English partridge; whereas on the same level of the eastern slope of the Andes, and for many miles on towards the pampas, we find a magnificent large bird resembling a guinea-fowl in size and shape, and with the small feathers, or plumes, on the top of the head, but of the same colour as the Chillan

partridge. Then in the middle ranges of the Andes we find an ordinary-sized partridge, or perhaps a little smaller, but with white feathers in the wings, which has caused it to be named the snow partridge : it is so tame that I have followed one quite close for a distance of fifty to sixty yards upon a footpath, firing at it with my revolver three times in succession without causing it to fly ; eventually it ran down a steep slope and took cover among some loose stones, leaving me perfectly amazed at the indifference with which it seemed to treat my " Colt " and myself. The fourth of the species is found almost exclusively on the great pampas, and is much smaller than any of the others already described : indeed, some think it is a species of quail ; which, however, I am not inclined to concur in. As to flavour, they are not, any of them, to be compared to our English partridge, their flesh being dry, white, hard and insipid.

I was astir about three o'clock on the following morning and aroused the trumpeter, who,

with half-closed eyes and a decided inclination to drop off again into the arms of Morpheus, managed to sound a few lazy notes ; sufficiently loud, however, to awaken the drowsy soldiers, who, tired after their exploits of the previous day, would willingly have indulged an hour or two longer. But work was before us, and energy required to perform it ; for a journey of some eighteen leagues (fifty-four miles) was to be got through before night, in order to gain some sheltered spot on which to pitch our tents. Fifty-four miles is considered but a poor journey on the pampas, but when one comes to compare the difficult track across a high range of mountains to an almost level plain, where the only ascents are molehills, and the only declivities an occasional *biscachero*—in which, however, a horse may break his leg and the neck of the rider into the bargain—I do not exaggerate in saying that it may be considered a *good* day's journey.

An hour before daylight, then, we got under way and steered nearly due west, groping our

way, in the dark cold morning, occasionally stumbling over some fallen cactus, and following closely on our *vaquiano* or guide, whose well-trained mare, by the tingle of her musical little bell, indicated the direction we should follow.

Just as the high summits of the distant peaks of the Andes were being tinged with the soft golden rays of the morning sun, we began ascending through a steep gorge, keeping in the dry bed of what had been once a river or mountain torrent, and about nine A.M. arrived on the summit of the *paramilla* or low range of mountains, over which a bleak cold wind was blowing right in our faces. Here we came suddenly upon a large group of huanacos, who immediately took to their heels and soon disappeared over a neighbouring summit. I did not feel in a particularly good sporting humour, so allowed the game to escape unmolested.

About noon we began descending, following the course of a small rivulet, which in many

parts was frozen and so slippery that our mules came down on their knees, sending their riders over their long spiteful ears. At the bottom of this descent we found a large rapid river flowing down towards the east, and following its course westward for about a quarter of a mile, we came to "Las Cuevas," which consisted of a few miserable huts, or rather caves, formed in immense boulders, some twelve or fifteen feet high, scattered about the plain. On the left there were large detached masses of old red sandstone, in which also several subterranean dwellings had been excavated; these were inhabited by the herdsmen and their families, the most filthy and wretched looking creatures I saw in the Argentine Republic.

Here I called a halt to breakfast, and gird up our loins for passing the high and rather dangerous range of *Tontal*, which takes its rise from the opposite side of the river. Although it seemed easy enough to ascend, I was informed that after ten o'clock in the morning it was considered no safe or easy task to pass



the "Cumbre," from the strong winds, so powerful as to blow over a mule and rider: in fact, that it was worse than the celebrated Uspallata, or "La Cumbre" of the Great Andes. But I was not to be dissuaded from attempting and, if possible, achieving the task by any of the old crones of the hut, and after some good broth and a comforting drop of the "crathur," we started once more to face the elements.

About half-past two P.M. we got up about two-thirds of the way, when I must confess I began to have serious doubts of accomplishing our object; the wind was furious, howling like an enraged lion, and rolling down the sides of the mountain large masses of snow, intermixed with sand and small stones. Many of the men had never been into the Andes before, and their fears had been so wrought upon by the old women that evident signs of mutiny, and a decided inclination to retrace their steps, were visible. The lieutenant most respectfully intimated that he feared we should not get over

without some casualty, and recommended a retrograde movement. I began to see the force of his arguments in the increasing fury of the gale; and not wishing to experience a repetition of my former exploits on "La Cumbre," I determined to order a right-about and descend.

I need scarcely say with what alacrity the order was obeyed. In a few minutes we found ourselves seeking some sheltered spot at the bottom, on the banks of the river, to pass the inclement night which might be expected to succeed so unpropitious a day. We were fortunate in one respect, that of having plenty of firewood to cook our supper and warm our half-frozen extremities; there was also good pasture for the mules. But it was evident that the greatest care should be taken to prevent a repetition of the previous day with regard to the escape of the mules; for to be obliged to wait a day or two in such inhospitable quarters for one's mule, was not to be thought of: all the animals were, therefore, made fast one to another, and the ends of several of the lazos tied

to the legs of some of the men extended on the ground, so as to warn them in case of the mules attempting to bolt. Not that I believe the men coveted such a "connection;" for I heard during the night several very strong expressions of disapprobation on the part of some unfortunate who happened to receive an extra tug, which no doubt disturbed the continuity of his dreams.

During the night I was taken very ill with a sudden attack of diarrhœa, brought on as I have reason to believe by having indulged in huanaco meat for dinner. Although the gauchoes told me not to eat it in very elevated or cold regions, I did not imagine it could produce so unpleasant a result: it certainly was a lesson by which I trust I have profited; and I would therefore caution intending travellers against its use under such circumstances, as I believe it to be highly injurious, being a cold and indigestible class of animal food in exposed and elevated districts.

By daybreak on the following morning we

were in the saddle, and a long half-hour's sharp trotting took us to the base of the Tontal. The morning was beautifully calm, though piercingly cold, and we were most fortunate in getting over unmolested by the wind, which I have almost invariably observed in the Andes seldom begins to blow with violence before 10 A.M. in the forenoon, and then generally lasts till evening.

From the summit of this pass the view is really magnificent, and perhaps surpasses anything to be met with on the road from Chili to Mendoza *via* Uspallata. Not that there is not scenery as grand and even grander on the latter; but none, I think, presented such a beautiful combination of colours and diversity of outline as that of the *vista* now before us. Between us and the Great Andes there are two distinct ranges of mountains with valleys intervening, fertile and cultivated to a certain extent; which character lends a softness and semi-civilized tone to the landscape, rendering it more pleasing, but destroying those wild and awe-

inspiring phases presented by most of the scenery on the Uspallata road.

The western side of the Tontal range is comparatively easy of ascent or descent; the road or track being wide and traversing the bed of a current, at some seasons dry and at others with a little water; which, however, does not interfere with traffic. The eastern side, on the contrary, is very steep and the track narrow; the mule being obliged, in some parts, to incline inwards towards the side of the mountain, and bury her hoofs in the soft débris of the decomposed rock, in order to maintain her equilibrium. It will, therefore, be perceived that some difficulty in transporting goods, &c., by this route will be encountered, but with an outlay of a few hundred dollars a very excellent road might be made available for heavy traffic. Even now, I believe, the Provincial Government have commenced the task, and are likely to make a good road, to enable the miners the more easily to transport the ore from, and carry provisions, &c. to the mines in the adjoining district.

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## CHAPTER XIII.

Route to the Tontal Silver Mines—Loss of Machinery from its being too heavy for Mules to carry—Cause of Failure in South American Mining Speculations—Hut of Miners of *La Carmen*—Good Supper and comfortless Bed—Start for *La Carmen*—The *boca mina*—Skill of the Miners in assorting Ore—Assay by the *Poruna*—Discovery of the Tontal Silver Mines—Mining Laws in the Argentine Republic—The Mine belongs to the Discoverer—Rights of a Miner—Extent of a Claim or *Pertenencia*—Claims in continuation—Claims must be worked, or they will be forfeited—Results of the Labours of the first Miners of the Tontal.

THE reader will, I trust, pardon my going somewhat minutely into a description of the route to the Tontal silver mines, as a little later on we shall come to consider the importance of the argentiferous deposits found in this vicinity. Indeed, it is a very important matter for consideration to those who

may wish to explore the mineral wealth of the district, and transport machinery and other appliances for the extraction of the precious metals, to know well the class of road and means of conveyance, and thereby be enabled to judge of what size and weight each piece or package must be to admit of being carried over so difficult and, I may add, (geographically speaking,) dangerous a piece of country.

From my long experience of South American travelling and means of transport, I would not recommend the sending of any piece of machinery intended for mining or metallurgical purposes which would weigh more than 150 lbs.; or when it is not possible to have it made so small, then the weight might be up to 350 lbs., but certainly not beyond. I have seen lying about in South America, in deserts and on mountains, pieces of machinery and materials for the reducing establishment, whose value must have amounted to thousands of pounds sterling, to all intents and purposes lost to the owners, simply from

disregarding the fact that mules cannot possibly carry a ton weight of cast iron or any other substance. Hence the result, in nine out of ten South American mining speculations, is failure ; owing, not to the poorness of the mines in quantity or quality of ore, but to the innate stubbornness of European engineers, who will not be convinced of the folly of sending out such masses of iron as only our English railway trucks will carry : they have not the most remote idea of South American roads, especially those leading to mining districts ; for it is a well-known fact that mineral lodes are almost invariably found in the most out-of-the-way places, and most difficult of access.

But to return to our journey. We descended rapidly on to an extensive plain, partially covered with snow and brushwood ; for it must be recollected that for the three previous days it had snowed incessantly, and that it was winter time of year. Here we saw several ostriches ; but being intent on reaching the mines that evening, I did not give chase, nor



allow any of the escort to indulge their hunting propensities. For two hours after crossing Tontal, we steered nearly west, and then wheeled almost due north on doubling a projecting ridge of mountain. This course took us over a series of low ridges, and towards evening we passed two ranges of higher hills, about 6,000 feet above sea level; we then got into a deep gorge, following the course of a rapid clear stream running westward towards the great Andes. About 5 P.M. we left the stream, and turning sharply towards the north, passed a range of low hills, on the other side of which was an extensive valley watered by a good-sized rivulet, and affording pasture for cattle; a number of oxen were grazing about, and indicated our near approach to some human habitation. An hour's brisk trotting up this valley eastwards brought us to the first hut, temporarily constructed in the mining district.

It was now quite dark, but the barking of some curs was a joyful indication of the goal

of our journey, and caused our half-frozen hearts to beat with delight at the prospect of enjoying the shelter of a house, however rude, and a comfortable supper; which, if it had nothing else to recommend it, would be at least warm. The violent barking of the dogs brought some of the miners to the door of the hut, who, on giving the usual challenge of "Quien vive," were no doubt rather astonished at being answered (I must say rather insolently) by the advanced scout, "La patria y el Inspector-General," and demanding in the name of the Government shelter and food. We were civilly invited to enter, and as usual were told that the entire house was completely at our *disposicion*. I alighted immediately, and was glad our hard ride had terminated; at least, for some days.

The hut was about thirty feet long by fourteen wide, and built of loose stones without any mortar or cementing mixture of any kind; consequently, each interstice formed a most delightful ventilator (with the thermometer at

zero); the roof consisted of rough unhewn poles, with boughs of trees stretched longitudinally, and some long grass on the outside served as thatch. On entering, I was much pleased to find a good fire in the centre of the floor, with benches around; and what was still better, the larder seemed well stocked with beef, for almost an entire ox was hanging from one of the cross beams of the roof, undergoing a species of smoking. The roof itself was almost invisible from the dense clouds of smoke slowly forcing its way out through the thatch, and on the whole the little hut presented a most hospitable and cheering appearance, in comparison to what we had been accustomed to for the previous few days. The most disagreeable part was the smoke, which, as it proceeded from green wood of a very carbonaceous and resinous nature, was most penetrating and disagreeable to the eyes, and could only be avoided by stooping down close to the floor.

I found that the habitation belonged to the

mine called "La Carmen," one of the first discovered and most worked mine in the district. The major-domo in charge was a Frenchman (from Br  tagne), whose knowledge of Spanish was either not very extensive, or he could not pronounce it so as to make it appear other than a most unintelligible dialect of French, with such a "nasal twang" as would do honour to a genuine "down-easter." He understood it, however, sufficiently to know that our appetites were most promising, and that the sooner supper was got under weigh the better; but as it generally occupies an hour or two to produce a good "casuela" and "asado," we were obliged to have patience, and smoke a cigarette by way of a tonic. In due time the steaming dish appeared, and I never recollect doing justice to the viands at a supper table in the West End so fully as on that occasion.

I retired early to—I was about to say sleep—but what with frolicsome rats which *would* insist on dancing and performing acro-

batic feats on my face and all over my bed, and the delightful *cool* breezes wafting in spotless white flakes of snow-drift through the walls at my head, and eventually, to crown all, the opportune (or inopportune) arrival and subsequent grand charge of a large *cat* on to my nose in pursuit of a rat, I got but little sleep for the first few hours : indeed I almost determined on rising and carrying my bed outside, preferring the cold of the open air to the society of rats and cats, with sneaking blasts which like dagger-thrusts penetrated the inmost recesses of the spinal regions ; being mindful of the Spanish proverb—" When the wind comes in at a hole go home and look after your soul."

At an early hour I was astir, and announced my determination of commencing at once the tour of inspection ; taking the nearest mines to begin with, and passing on the following day to the second district, or department, about two miles to the south. I had then no idea of the extent or number of the mines worked

in Tontal: I had been told it was a new district, and concluded it possessed but few really worked mines; the majority of the original "picados" having been abandoned soon after their discovery, owing to various causes which I shall hereafter explain. As I have before remarked, it is no easy matter to be punctual in executing determinations in South America, when the lower order of natives have anything to do with the arrangements; I was, therefore, a considerable time in getting my mining friends on the move. The sun was high in the heavens before we started in Indian file to ascend to "La Carmen," which stood in front of the hut about 1,000 feet up the side of a steep mountain; the entrance, or "boca mina," appearing like a rabbit-hole in the distance.

The French "major domo" led the way and guided us along a narrow zigzag path very steep and slippery from frozen snow in the shady parts, and after much puffing and blowing and repeated halts, we arrived, the

majority of us pretty tired, at the "boca mina." The "boca mina," or mouth of the mine, is the place where the ore is brought out and assorted by the miners. The different classes of ore are piled up in heaps according to *ley*, or percentage, and are afterwards broken up small and further classified; the ore is then ready for weighing and transmission to the reducing establishment, or the shipping port, as may best suit the owner's purpose.

I have often wondered at the quickness and precision with which the South American miner assorts and determines the various qualities of ore by simply a rapid glance, without a lens or other scientific aid to assist him; rarely, if ever, can a piece of ore containing metal be found amongst the rejected piles of *desmontes* surrounding a shaft's mouth. If the practised miner happens to meet with a new class of ore which puzzles him at first sight, he resorts to his rough and seemingly absurd method of assay: a cow's-horn sawn longitudinally in half, and a little clean water, being all the apparatus

necessary to form his laboratory. It is surprising with what dexterity and accuracy he will determine the *ley* of a mineral; though he frequently makes rather serious mistakes in metallurgical nomenclature, not being able to decide which metal is present, if in the non-metallic state: he will, however, in a few minutes convince himself of the presence of *some* heavy substance, and that is sufficient to warrant his laying by the ore until a favourable opportunity offers of having it assayed by some metallurgist.

In the case of metallic gold he will seldom be far wrong in his assay: indeed I have frequently seen old miners with the "poruña" obtain more accurate results than the majority of *passed* assayers in Chili. The mode of using the "poruña," or horn, is simply to take a handful or weighed quantity of the finely pulverized ore and place it in it *dry*, then a little water is added and the mass well mixed; the lighter particles, mud, &c., floating, or being held in suspension by the water, flow off,



leaving the metallic matter at the bottom mixed with the coarser grains of the *gaugue*, or matrix. These, in their turn, are removed by repeated doses of water, until eventually the metal sought for alone remains in the angular hollow of the horn; when by a peculiar sort of percussion movement, given by striking the horn against the palm of the hand, the heavier particles sink, and by moving the water gently over their surface, to remove any remaining *gaugue* and retiring it farther towards the point of the horn, the gold, &c. may be seen in a long narrow band on the bottom, by the length of which the miners are enabled to judge of the richness of a sample. They frequently calcine the crude ore before operating upon it with the "poruña."

Before describing the different mines in detail, and while the miners are preparing candles and rough cow-hide slippers for us to descend into "La Carmen," I shall give the reader a slight insight into the history of the "Tontal" and its discovery as a silver mining district.

The existence of rich argentiferous and auriferous deposits in many parts of the province of San Juan, is well known and admitted all over the Argentine Confederation and in the adjoining Republic of Chili. We have proofs of many gold and silver mines having been worked by the Spaniards, from the earliest date of their settlement in that part of the South American Continent; but until within the last two years (from the beginning of 1861) very little reliable information or positive data as to their richness could be obtained.

About the month of August, 1860, a Chilean miner (a political refugee) was engaged in herding cattle in the district of Tontal, distant about 18 leagues, in a direct line W.S.W. from the town of San Juan (lat.  $31^{\circ}$  south, long.  $69^{\circ} 30'$  west of Greenwich)—and while so employed in a range of high hills about 6,000 feet above the sea, he discovered a metallic vein cropping out on the surface. From his previous knowledge of ores he concluded it might prove of some importance, and

consequently forwarded a specimen to a friend in Chili, who had it assayed, and found the composition to have been principally a sulphide of lead (*galena*) highly argentiferous, and a most important ore, if a quantity could be procured. The discoverer on receiving intelligence of the result, immediately took the necessary steps to secure a legal title to the vein. This, I may here observe, is a very simple and inexpensive procedure in the Argentine Republic.

The mining laws, or *Ordenanza de Minería*, as originally established by the Spaniards in Mexico, being still in force, with slight modifications to suit Republican ideas and institutions, are perhaps the most favourable, and, to the miner, decidedly the most advantageous of any with which I am acquainted. Any and every person of or above the age of twenty-five years, irrespective of nation, religion, occupation, or calling, is eligible to acquire and possess mining property. That is to say, any person as aforesaid, discovering the existence of a

metallic vein outside the boundary of an already allotted mineral claim, or *pertenencia*, is entitled thereto, by simply denouncing the same before the notary public of the district, and presenting a stamped document (value 2s. 3d.), describing the position, boundaries, and class of ore; presenting also a sample of the latter, and declaring that he has at his disposal the necessary means, &c. of working and exploring the vein. The mine is then ceded to him and his heirs for ever; provided he complies with certain conditions laid down for the proper working and exploration of the same, according to law, without prejudice to any third party.

There is no royalty, nor can the owner of the soil interfere in any way with the legitimate working of the claim; and, in fact, so strong are the laws in favour of the miner, that should his vein pass beneath the house of the owner of the soil, he has every right to open a shaft, should he desire it, in the very drawing-room; paying of course for all damage or deterioration of property on the surface. The miner, or

possessed in the Republic, but a motion is before Congress to abolish it.

To return to the Tontal discovery, the miner began working with the very limited means at his disposal, but with the assistance of a few friends he succeeded in reaching the depth of 12 varas, or about 11 yards English. In the meantime hundreds of miners and others flocked to the district, and some thirty new veins and lodes were discovered ; but, strange to say, with few exceptions, at a depth of 12 to 14 varas the galenas or sulphides of lead disappeared altogether, and the vein, although still continuing, and in some instances much wider, appeared to the primitive and non-mineralogical miners to be simply a mass of ferruginous clay without a trace of either lead or silver. This state of things naturally disheartened them, and nearly all the workings were abandoned ; then came the revolution of 1861, and the subsequent internal commotions in the Republic, which threw every branch of industry at least ten years backwards in the march of civilization.

## CHAPTER XIV.

Proceedings of the Argentine Government — The Author appointed Inspector of Mines—Result of Examination of the Tontal District—Geological Formation—Nature of the Ore—Results of Analyses—Miners recommence Operations—Product of their Labours—Facilities for smelting Ore—Capital alone wanted—An opening for Speculators—Number of Mines in Operation—Labour is cheap—Native Miners preferable to English—A Joint-Stock Company formed—Mineral Wealth of the District—Immense Extent of La Plata—Diversity of Climate—Sickness almost unknown—Want of Population.

EARLY in 1862, the Argentine Government, recovering slowly, but steadily, a firm footing, had put down—it is hoped for ever—the last remnant of a long triumphant but retrograde party of politicians, who for more than thirty years had kept the country in a state of civil war, exhausted her strength and population in sanguinary, cruel, and useless conflicts,

and smothered every effort made by a few peaceably disposed men to develop the internal resources and mineral wealth of this extensive and physically great Republic. Desirous of securing the services of a competent scientific man to examine the mining districts and report upon their condition, the Government appointed the author, who accordingly proceeded from Chili, where many years' practice in mining and mineralogy enabled him to judge of the value of the mining districts contiguous to the Andes.

On arriving at Tontal, after a careful examination of the district, which extends over ninety miles, I came to the conclusion that most important argentiferous deposits existed there.

The geological formation may be considered, perhaps, one of the best for silver—namely, clay-slate, and in some parts killas, grauwacke, &c., together (further south) with some of the best silver-bearing igneous rocks. On a cursory examination of the ore—a ferruginous mass of clay—from the different veins, I was of

opinion that (the lead having disappeared) it contained a fair quantity of what is termed in South America "*metales calidos*" (literally "warm metal"); which is that class of silver ore capable of being treated by the amalgamation process direct, without previous treatment by fire, and consequently admitting of a cheap and expeditious extraction of the precious metal.

An analysis performed in the laboratory on more than one hundred samples, taken with my own hands from the various mines and veins, showed a most satisfactory result, giving an average ley of 168 ounces of fine silver to one ton of crude undressed ore. Subsequently, from seven assays performed by Messrs. Johnston and Matthey, of London, an average of 891 ounces to the ton was obtained; some of the samples giving 2,417 ounces. The principal part of the silver exists in the state of chloride; of which there are very minute grains disseminated through a matrix of clay highly charged with oxide and carbonate of iron:



another most important re-agent, which will tend materially to the facile extraction of the silver.

On publishing the official report of the result of my investigations, the miners, of course, recommenced their operations, and are now most actively engaged in extracting ore which a year ago they threw away as useless.

There were out on the surface in September, 1862, about 900 tons of ore of superior ley, and I do not exaggerate when I state that at this moment (May, 1863) there are at least 1,500 to 2,000 tons of ore extracted in Tontal, whose average ley will be over 200 ounces to the ton.

In the neighbourhood of the mines every natural facility presents itself for the treatment of the ores and the extraction of the silver: we have firewood in such abundance as would last a large establishment one hundred years; water-power to any extent is at our disposal, and a selection of fire-clays equal to Stourbridge will suffice to build any reasonable

number of furnaces. But one great *sine qua non* is wanting—capital. The poor miners have very little, in fact none available ; their little all has been invested in getting out ore which lies there on the surface comparatively useless, owing to a want of means of transport to the coast, or of a smelting or reducing establishment. Mules are dear and sometimes scarce, and a poor man cannot advance sufficient to induce the needy muleteer to carry his metal and get paid the remainder of his freight afterwards. Therefore, any speculator offering even half of the real value of the ores out, might obtain them from the majority of miners, who would be only too glad to accept of any price to enable them to proceed with their work ; for the lower the shafts or workings are sunk the richer the veins are becoming, consequently it is the interest of the owner to get as deep as possible.

Recent advices from the district inform me of several most important discoveries of new veins and lodes, and the number of mines now

in operation exceeds 100. Some of the lodes are as wide as  $3\frac{1}{2}$  yards, and on the whole might average  $1\frac{1}{2}$  yard; so that a fair quantity of ore can be extracted daily. Many of the wider veins are comparatively poor (about sixty ounces to the ton), but, worked on a large scale, would pay remarkably well.

Labour in the mining districts is cheap, and I believe, by employing native miners and working economically, it may be less expensive than in England. For example, in ordinary hard rock the shafting, or "labores," are wrought for about 4 dols. to 6 dols. the vara; and barra-teros are paid monthly about 14 dols. (2*l.* 16*s.*), with provisions and tools.

It is a great mistake, in my opinion, to take out to South America the Cornish miner, as the native is far superior in his own way of working; which I need scarcely observe is very different to our English method. Moreover, Englishmen must have their comforts abroad as well as at home, and when they cannot obtain them—as is frequently the case

—they become almost useless, and decidedly discontented ; to the annoyance of their employer and those about them.

A joint-stock company has been already formed, and the full capital of 110,000 dollars paid up, for the purpose of erecting reducing works and purchasing the ores ; but it is prohibited by its statutes from having to do with the actual working of mines. There is, however, sufficient room for three companies, so extensive is the district—nearly thirty leagues long (ninety miles) by about fifteen leagues wide (forty-five miles); and having examined the greater part of it I can vouch for its being highly metalliferous : in fact, it is a perfect network of veins and lodes—cupriferous, argentiferous, and auriferous.

The very name of the Republic is in itself indicative of its mineral wealth. La Plata, or the silver country, the name given by the early Spaniards on its discovery, no doubt emanated from the fact of their having found large quantities of silver there. Its extent is

enormous, reaching, as it does, from the river Plate in the  $34^{\circ}$  of south lat. to Cape Horn in the  $55^{\circ}$ , and stretching across almost the entire continent to the Great Andes, which form a semi-impenetrable barrier on the Chilian frontier ; then away to the north it joins Bolivia in about the  $22^{\circ}$ , and on the east the territory of Brazil ; presenting on the whole such a diversity of climate as is not equalled by any other country in the world. It is larger than all Europe ; yet epidemic or sickness is almost unknown : but alas ! there is that great want of population ; which in such an extensive territory is severely felt. Thousands of square miles of the richest and most productive soil remains in its primitive state, and comparatively valueless, though watered by some of the finest rivers in the world. But the day, I trust, is not far distant when the tide of emigration, so long misdirected to the United States, must turn in this direction ; where a warm sympathy for foreigners already exists, and a hearty welcome awaits them !

## CHAPTER XV.

The Author's Duties—Appearance of South American Mines—Description of La Carmen—Mode of working the Mine—Severe Labours of the Miners—Mr. Darwin's Account—Vein of La Carmen—Mine badly worked—Produce of Ore—Numerous other Mines—Results of Assays of Samples from Mines at Tontal and La Huerta—Indications of Gold and Copper—A Spot of rich Silver Deposit—Results of the Silver Mines in Chili—Wealth open to all—Importance of the Mines of San Juan—Silver more attractive than Steel—Author's Plan of working Silver Mines—Cost and Yield of the Tontal Mines—Proposed Reduction of Works—Author's Plans for working less rich Ores.

It is right the reader should be informed that my duties as Inspector-General of Mines were to see that the miners were properly treated, and that the various shafts and excavations in the mine were executed in accordance with the "Ordenanza de Minería," or code of mining laws before alluded to; and

on finding a mine improperly worked, or in a dangerous state from gases, &c., it is my duty to report the same to the "Diputado de Minas," who generally publishes the fact and declares such mine denounceable.

The majority of mines in South America at first sight would appear to our scientific English miner as so many rabbit-burrows; no rule or definite plan being followed in driving levels or shafts: in fact, very rarely do we find the latter mode of working mines adopted. La Carmen is a capital illustration of the system, and, with the reader's permission, I will describe it; and by this description he may judge of all the other mines in the Tontal district.

Standing at the "boca mina," and looking along the side of the mountain right and left, may be seen a peculiar ridge-like mass of yellowish brown stone, projecting from the mountain side at an angle of about  $25^{\circ}$ ; this may be traced with the eye extending for a considerable distance, at intervals lost to sight,

but again cropping out, following the curvatures and irregularities of the rugged mountain like an enormous belt. This is what we term a "veta," or mineral vein, and to an unsophisticated observer, would appear in nowise to differ from the surrounding formation of the hill; but a miner or geologist would recognize it at a glance as a promising metalliferous deposit. Thus it is that mineral veins are discovered in South America, and almost exclusively thus; boring or searching for lodes would be absurd, and so expensive a procedure that it has never for a moment been thought of.

In the present instance of La Carmen, the workings have been begun on the vein itself; an excavation being made at the same angle as the vein, following all its irregularities and turnings for a depth of about twelve *varas* (Spanish yard = 33 inches). The descent, therefore, is very easy, as steps are cut in the rock and form a perfect staircase. The vein was cut in its lateral direction by thus



working, which is called a *chiflon*; and at a depth of twelve varas a *fronton*, or level, was struck at right angles, following still on the vein and cutting it longitudinally to the left and right. The *fronton* may be carried on the same level as far as may be deemed expedient, but generally at a distance of twelve varas: another *chiflon* is struck, and cuts the vein, again laterally following up its angle of inclination, and so on: the mine is a series of *chiflones* and *frontones*, thereby avoiding the necessity of ladders or winding machinery; all the ore being carried upon men's backs in *carpachos*, even from the greatest depths. It is really astonishing to see the loads these poor creatures carry out of the mines; in some of them, where perpendicular shafting is the mode of working, the only ladder is a round pole, generally crooked, with notches cut with a hatchet to serve as steps: on these, however, there is barely room for the point of a man's toe, and what with water and constant traffic, they become so slippery

as to endanger one's life in ascending or descending.

Captain Head and Mr. Darwin describe very faithfully the feats those miners are capable of performing in carrying heavy loads. The latter says that he "thought Captain Head's account rather exaggerated until he had an opportunity of weighing one of the loads, which he picked out by hazard. It required considerable exertion on his part, when standing directly over it, to lift it from the ground. The load was considered under weight when found to be 197 lbs. The 'apire' (miner's assistant) had carried this up eighty perpendicular yards; part of the way by a steep passage, but the greater part up notched poles, placed in a zigzag line up the shaft. According to the general regulation, the apire is not allowed to halt for breath except the mine is 600 feet deep; the average load is considered as rather more than 200 lbs., and he says he was assured that one of 300 lbs. (22½ stone) by way of a trial had been brought up from the deepest mine! At that time the

apires were bringing up the usual load twelve times a day, that is, 2,400 lbs. from eighty yards deep, and they are employed at intervals in breaking and picking ore; yet these men, excepting from accidents, are healthy and appear cheerful. Their bodies are not very muscular; they rarely eat meat once a week, and never oftener (in Chili), and then only the hard dry charqui. Although with a knowledge that labour was voluntary, it was nevertheless quite revolting to see the state in which they reached the mouth of the mine, their bodies bent forward leaning with their arms on the steps, their legs bowed, their muscles quivering, the perspiration streaming from their faces over their breasts, their nostrils distended, the corners of their mouths forcibly drawn back, and the expulsion of their breath most laborious: each time they draw their breath they utter an articulate cry of 'ay-ay,' which ends in a sound rising from deep in the chest, but shrill like the note of a fife. After staggering to the pile of ore, they emptied their 'carpacho;' in two or three

seconds, recovering their breath, they wiped the sweat from their brows, and, apparently quite fresh, descended the mine again at a quick pace."

The vein of La Carmen, like most of the others in Tontal, contained on the surface a quantity of galenas; which, however, disappeared at a short distance down, and the same sized vein still continued in a mass of ferruginous clay. This, as I before stated, was supposed by the miners to be nothing but iron, and consequently useless; they were, however, soon disabused of this belief, and now continue to guard *el fierro* as carefully as they did "*la galena*" of former times. It was most interesting to trace the vein down to the lower workings, about forty yards deep vertically, and note how it changed and gradually became thinner, and eventually disappeared altogether, at a point where a mass of clay slate with a peculiar patch of porphyry bulged convex-shaped from above and beneath, and completely cut off the vein. At this point the

working had been abandoned, and recommenced in another place, which was more satisfactory; they had got down far past the level of the fault, by which it was quite proved that the vein still continued as rich as ever beneath the porphyritic injection. After numerous windings and doubling through passages, I arrived at the lower workings, where the miners were busily engaged in extracting ore. Here the vein was about two-thirds of a yard wide, and looked very promising; several pieces which we took out containing a fair share of chloride of silver quite visible to the naked eye.

Had this mine been properly worked from the beginning, much more favourable results would have been obtained; for in the claim of 100 yards wide, there were four veins running longitudinally, which by a simple level run straight into the mountain would have been cut, and each then might be worked, and the best selected to continue upon. I was obliged to expostulate rather strongly with the major domo for this negligent mode of working, and

threatened to denounce the mine if certain improvements were not at once made in some of the levels and "*chiflones*;" as these were narrow, low, and consequently inefficient to ventilate the mine: all workings of this class should be  $2\frac{1}{2}$  yards high, and  $1\frac{1}{2}$  yards wide.

Having thoroughly inspected the interior of the mine, we ascended once more to the "boca" and took a breath of fresh air. There were large heaps of ores neatly piled up, and assorted into different classes, previous to weighing and exportation to Chili; whither a quantity had been sent a short time previously, and produced a ley of .528 ounces to the ton.

From La Carmen I passed higher up the mountain and inspected numerous other mines, all equally and some more interesting, from the width of their lodes, and richness of the ore. To describe them separately would be simply a repetition of La Carmen; suffice it to say, that I selected from each mine and pile of ore an average sample of the different classes, and

on my arrival in San Juan assayed them in the Government laboratory.

I give the results of each as I obtained them, and as they appeared in my official report to the Supreme Government, published by order of the Minister of Finance. Those results have been since confirmed by Messrs. Johnston and Matthey, of Hatton Garden, London. Not a doubt rests upon my mind of the existence of immense argentiferous deposits in Tontal, which, when explored by the aid of science and experienced miners, as is now being done, will soon produce astonishing results and afford a sufficient proof of the accuracy of my former and present statements.

RESULTS OF TWENTY-FOUR ASSAYS OF AVERAGE SAMPLES from the different MINES at TONTAL and LA HUEBTA, obtained by the Author in the Government Laboratory at San Juan.

	No.	Name of Mine.	Ley in oz. to English Ton.	
Tontal	1.	Carmen	168.00	
"	2.	Mediodia	160.00	
"	3.	Encantadora	498.60	
"	4.	La Fortuna	56.00	} Lode $3\frac{1}{4}$ yards wide.
"	5.	Sarmiento	186.00	
"	6.	Los 3 Amigos	168.00	

	No.	Name of Mine.	Ley in oz. to English Ton.	
Tontal	7.	Independencia	202'00	
"	8.	Señor	312'00	
"	9.	Señorita	547'00	
"	10.	Manto Mercedes	240'00	{ First mine discovered in Tontal.
"	11.	Casualidad	152'00	
"	12.	Al fin Hallada	533'00	
"	13.	General Mitre	1,845'60	{ Last mine discovered up to 1862.
"	14.	San Pedro	1,480'00	
"	15.	Jachal	234'00	
"	16.	Las Tolas	307'00	
"	17.	Tontal	169'00	
"	18.	Andacolla	158'00	
La Huerta	19.	Rasario	157'00	
"	20.	La Paz	224'00	
"	21.	Los Reys	84'76	
"	22.	Bella Isaula	258'00	
"	23.	Santo Domingo	530'00	
"	24.	Chucumera	282'70	
Average			356'00	

RESULTS of SEVEN ASSAYS made by Messrs. JOHNSTON and MATTHEY, of Hatton Garden, London, on Samples from San Juan.

No.	Name of Mine.	Ley in oz. to English Ton.
1.	Carmen	816'750
2.	Señor	2,417'50
3.	Al fin Hallada	408'50
4.	Señorita	470'00
5.	Sarmiento	40'00
6.	General Mitre	1,388'50
7.	Santo Domingo	695'50

Average 891 ounces to the English ton.



I remained in the district for eighteen days, examining and thoroughly investigating the nature and extent of the argentiferous deposits. I found some splendid quartz veins and indications of gold; so much so that I was every moment expecting to pick up a stone with metallic gold in it. Neither are copper veins wanting; but so numerous are the silver ones that the miners look upon the baser metals with disdain.

There is one spot which may be considered the nucleus of rich silver deposit in Tontal. Within a space of 1,000 yards square there are upwards of twenty mines open, on distinct veins, some of which are enormously rich; and in every direction, for miles and miles in circumference, the hills are a perfect net-work of metallic veins: yet I consider the district as almost virgin. From the few indications which I was enabled to give some old *cateadores*, or mine seekers, since my return, numerous important discoveries were made, and continue to be made almost daily. The

matrix is very soft, and not much exertion is needed to extract the ore: in some mines no gunpowder is used. Indeed, from the natural wealth of the immediate neighbourhood, in water, firewood, and rich soil to produce corn and the other necessities of life, this spot must soon rival the celebrated Potosi, where millions sterling were annually extracted for nearly 300 years.

What was Copiapo, or the Republic of Chili, previous to the discovery of the celebrated silver mines of Charñarcillo and Tres Puntas? These have yielded hundreds of tons of silver in the metallic state; the miners being obliged to cut it out of the veins with chisels and other edged tools, gunpowder being ineffective. To what circumstance do the present millionnaires of Chili owe their colossal fortunes? To what happy event is due the almost uninterrupted ten years of peace which Chili has enjoyed, thereby advancing her in every branch of industry and civilization, and causing her to be respected among nations? Simply to her

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“ mines ” and “ minerals,” because they have attracted the attention of her people and drawn off their thoughts from frivolous and imaginary grievances ; which, if allowed to ripen, would engender rebellion and plunge their country into the horrors of a civil war.

Every man, being equal before the law, is eligible to acquire mining property, whether by purchase or right of discovery : but principally by the latter. Having so acquired it, and risen, as it were, from nothing to an influential position by the wealth produced by his mine, he becomes a useful member of society, and, consequently, would hesitate to implicate himself in revolutionary plots and projects ; which for half a century past have been the bane and the curse of nearly all the South American republics. Therefore, I say, that the discovery of mines and minerals in the province of San Juan is about the most felicitous event that could be desired, and certainly will prove most propitious to the peace and tranquillity of the entire republic of La Plata. The

grand principle of governing those southern nations is to occupy their thoughts and attention by something more attractive than revolution and bloodshed; and where is there one to be found so effective or so all-absorbing as in the jingle of "*La Plata?*" Let the most enthusiastic "patriot" only hear that magical sound, and, believe me, he will prefer it to that of cold steel, and soon abandon the latter for the former.

I have endeavoured to introduce a system of working mines in San Juan, which I believe to be most economical, and decidedly the best suited to the means and intelligence of the majority of miners. It is this: to have no perpendicular shafting (except for purposes of ventilation), but to work on the lode itself by means of "chiflones" and "frontones;" thus entering first at an angle of say  $45^{\circ}$ , and at a depth of 12 yards, striking a level for 12 to 20 yards, then another "chiflon" at  $45^{\circ}$  for 12 yards, and so on. Or, when more practicable, driving a large level from the outside, so as to

cut the vein transversely or longitudinally; thereby avoiding the use of machinery or ladders, which in some districts would be impossible to introduce, and prove too costly to maintain in order.

The average cost per ton of extracting ore in the Tontal district ought not to exceed 1*l.* sterling. Now when we take into consideration the enormous quantities which may be extracted with facility, and the ley thereof—even though it should only amount to fifty ounces pure silver to the ton—I have no hesitation in recommending conscientiously and honestly the employment of capital in that district. Let us suppose that fifteen tons of ore may be extracted daily from a good vein, the ley thereof being but fifty ounces silver to the ton; the value, at 5*s.* per ounce, would be 187*l.* 10*s.* Deduct from this the cost of mining, say 20*l.*; the cost of breaking up and packing in skins to be sent to the reducing works, say 3*l.* 15*s.*; carriage to reducing works, say 15*l.*; cost of reduction, 14*l.*; the result would leave a profit of 134*l.* 15*s.*

for the day's work. In a tabular statement it may appear clearer, thus :—

<i>Cr.</i>		£	s.	d.
15 tons of ore, ley 50 oz. to ton, at 5 <i>s.</i> per oz.		187	10	0
		<hr/>		
<i>Dr.</i>				
Mining, including every charge, wages, tools, &c.		20	0	0
Breaking up by hand and packing in sacks		3	15	0
Carriage to works		15	0	0
Cost of reduction		14	0	0
Balance profit		184	15	0
		<hr/>		
Total		187	10	0

Working 300 days a year at the above rate, the annual profit on such transaction would be 40,400*l.* 5*s.*

It will be seen by this calculation that I set down the value of the silver and ley of the ore very much below the average of the results I obtained from 100 samples, which was 168 ounces; and of those obtained by Johnson and Matthey, 891 ounces from seven assays of the best mines now in work. Moreover, the cost of extraction, and the other items set down, are fully 20 per cent. higher than the actual cost; as any experienced South American

miner will see at a glance. In fact, I have estimated what may be taken as a minimum of produce and the maximum of expenditure, in order not to appear too sanguine.

As to the possibility of extracting 15 tons of ore daily from almost any mine in Tontal, I have not the slightest doubt existing on my mind: and in one or two instances of extra wide lodes, I would guarantee to extract double or treble that quantity if required. One of these lodes I allude to is the "Fortuna" mine, whose width is  $3\frac{1}{4}$  yards; the average ley of ore, all classes mixed, being 56 ounces to the ton; which, selecting or mixing with ores of a higher ley from other mines, would produce an average of over 100 ounces of fine silver.

The reduction works I propose erecting—one a short distance from the mines, on the banks of the San Juan River, which I shall describe further on, and another in the immediate vicinity of the mines—are calculated to work up such ores, of fifteen to twenty-five ounces to the ton, as will not pay freight to take them any

distance. Thus all classes of ore may be made available. Those containing sulphur, arsenic, or antimony, which render them incapable of being treated with mercury, I intend reducing by fire; extracting the silver in combination with lead, concentrating by partial cupelation, and exporting the produce in the state of rich argentiferous lead; thereby escaping the heavy export duty chargeable upon pure silver, and making the ingots appear less attractive to the would-be robber.

In the latter case, the lead (worth 22*l.* a ton) I propose shall go in some measure to pay the carriage of the silver to the coast; thereby placing that metal on board ship almost free of carriage.

At some future period I propose utilizing the copper ores by smelting them with the poorer silver ores; forming thereby an argentiferous regulus containing some 50 per cent. of copper, and about 500 ounces of silver to the ton.

I trust from the foregoing explanation that

the reader will gather sufficient information to enable him to understand what sort of place the Tontal mining district is, and the chances of its becoming, at some future and no distant period, of considerable importance in the mining world.

## CHAPTER XVI.

Homeward Route to San Juan—Leave my Hut—Road available for Carriages—Descent from the Tontal Mines to the Valley—Clays of the Old Red Sandstone—Valley of Barrial—River San Juan—Site for Smelting Works—Peaceful Valley—Resinous Wood—We reach Calingasta—Hospitable Reception—Indian Villages in the Valley of Barrial—Tombs—Inscribed Stones—House of the Justice of Peace—Rude Water-Mill—Guide and tall Horse for fording the River—Good Camping Ground—Alarm of the Camp—Mules attacked by Pumas—Fright of the Men—Mules and Pumas killed—The Ass and the Puma.

I will now ask my reader to accompany me on my homeward route from Tontal to San Juan, *via* Barrial and Calingasta, a different one from that by which I came. Having been told that a cart road might be made along this route with little difficulty, I was naturally interested in seeing it, and also desirous of passing through



the valley of Barrial, where the greatest abundance of firewood and water-power is obtainable for the purposes of a reducing establishment.

I therefore bade adieu to the miserable hut, which, for all its peculiarities and disagreeable occupants, afforded me a capital shelter during my stay of eighteen days in the district. There were many other huts, some of them better, but the majority ten times worse; in fact, mere caves in the hillside, with no other door than a piece of cow-hide suspended by a rope passed through a hole in the centre of the upper end next the roof, and that served as a hinge on which to turn it aside while entering or sallying forth.

We started about noon, and steered nearly due west for several miles, passing through a valley very thickly studded with a species of brushwood. Along the banks of a stream which watered its centre, a long white grass grew in great abundance; it looked very pretty, and I am told makes excellent thatch for

ranchos. The road, or track, is very good, and might be made available in some parts for carriage traffic; but one or two *saltos*, or sudden ascents over ledges of rock, would prevent its being used as such without first removing these obstacles.

Some three hours' ride took us pretty well out of the Tontal range of mountains; although in riding along, from the descent being so gradual, we did not seem to have come down anything like the actual height; which from the bottom of the last range must be at least 3,000 to 4,000 feet.

On approaching the valley of Barrial, the valley leading to the mines becomes very open, and extends at least two to three miles across, the ground of a gravelly nature, covered with brushwood. Closer still to the edge of the valley of Barrial, we came upon strange, immense isolated masses of old red sandstone, with bands of refractory clays of all colours and classes, running at every angle through them, and producing a most picturesque and

pretty appearance. I took samples of many of those clays, and examined them for silica, &c., with the object of forming bricks for furnaces out of them, and some gave me as satisfactory results as could be desired.

About half-past four P.M. we emerged from the hills suddenly on the great valley of Barrial, which extends some thirty miles in length by about fifteen in width; it is partially cultivated and but thinly populated, although the soil is some of the richest I have seen in South America. The river of San Juan winds its course through the centre, and would serve to irrigate any quantity of land, on either side; but either the proprietors are so indolent, or labour is so scarce, that no efforts seem to be made to extend the limits of the cultivated parts. These produce in the worst seasons 100 for 1, and frequently 180 to 200 for 1; indeed, Sir Woodbine Parish states, in his work on the Argentine Republic, that the produce in some parts of the province of San Juan is up to 240 for 1.

The river is not very deep, but so rapid that

it is not safe to cross it, except at certain places well known, and these only at certain seasons of the year—usually the winter—when no snow is melted and sent down to increase its volume. It is in some parts nearly a quarter of a mile wide, and will average about 100 to 150 yards all the way down; but from its great fall and rapidity of the current it can never be made available for navigation. It takes its rise about thirty to forty miles south of the point where we are supposed to be gazing at it, immediately in front of the mines, and passes close to the town of St. Juan, watering and fertilizing the land in its vicinity, and eventually losing itself, like almost all the other rivers in the plains, in a sort of morass extending for many miles into the province of Mendoza, and called “Las Lagunas de Guanacáche.”

On gaining the edge of the river, we turned northward and followed its course for several miles, examining the firewood and searching for a good locality on which to erect smelting works; eventually we found one admirably adapted,

situate about seven leagues from the mines (by another route) at a place called Hilario, where only a few miserable huts and half-a-dozen enclosed fields indicated the presence of civilization, or rather semi-barbarism: for those poor isolated beings who inhabit the district seldom see anything of the great world outside the boundaries of their peaceful valley. And are they not happy? I sometimes envied them. The wood which is found in greatest abundance here is of the class called *retamo*, which seldom exceeds six inches in diameter, and is so resinous that a torch may be made from it solely, which will throw out a glare equal to any artificial one commonly used for torchlight processions, &c.

After determining upon the site for our works, and having a little refreshment, we started off, determined to reach Calingasta before night. We therefore pushed ahead briskly, and arrived without any unusual incident, at about eight P.M.; the distance being fourteen leagues. We had to ford the river,

which was not very high at that period ; but for a small mule or donkey on which some of my men were mounted (their own mules having escaped from the mines), it was rather close work, and one or two, I believe, came down and ducked their riders, who being expert at such work, easily extricated themselves and scrambled to the shore in safety.

The magistrate of the district received us very hospitably, and made us as comfortable as possible in such an out-of-the-way place. I remained here some few days, examining the geology of the district and any other interesting matter to be found in the neighbourhood.

In the valley of Barrial, I came upon several interesting ruins of the Indian villages said to have existed in the time of the Incas. They consisted merely of the outlines of large, square, and oblong buildings, extending over a space of about half a mile square. I found some pieces of broken pottery ware, and endeavoured to find something more interesting by excavating with my geological hammer ; but the short time

at my disposal, and the inefficient implements to work with, were a sufficient bar to my obtaining satisfactory results. There is a place close to the ruins, on the flat summit of an immense mass of sandstone, which is pointed out as being the burying-place of the Indians, and on striking the ground in several places it resounded quite hollow, indicating a subterranean passage or apartment of some kind.

I am told that further to the north there are several tombs, arched over and built up with masonry so firmly cemented as to appear one solid mass. The inhabitants have a superstitious dread of opening these interesting remains of a former age, and no inducement is sufficient to obtain their assistance in exploring them. I, however, intend, on my return, with a number of Englishmen, to thoroughly explore the neighbourhood and determine what is contained within those mysterious looking tombs. I also saw some large stones, with hieroglyphics or inscriptions, to me quite unintelligible, but which I propose to

photograph on my return and submit to some scientific antiquarian for examination.

The house of my friend the *Juez de Paz*, Doñ Ambrosio Caisedo, is very beautifully situated in a most fertile spot surrounded by mountains on every side, with the river running past in front. The fruit-garden consists principally of peach and pear trees, with some vines which produced a most delicious grape. The climate here is so fine that almost any semi-tropical fruit may be produced. There is a flour-mill, rather a rustic concern, on the premises, which I was told paid remarkably well, being the only one in the district. The stones were in one solid piece each, of granite, cut out of the neighbouring hill, and dressed with a total disregard to the circular shape usually adopted for flour mills; the lower, or bed stone, was placed on the floor directly over the horizontal waterwheel beneath, whose upright shaft passed through the eye of the stone and received the runner direct on the head; the only means of raising or depressing the upper



was by a most primitive sort of screw, with a long piece of iron attached to a piece of wood in which the pivot or bearing of the waterwheel played beneath, so that to raise or depress the stones the entire wheel had to be lifted, or lowered, as the case might be. This, with a very primitive hand sieve, formed the *tout ensemble* of the flour-mill of Calingasta.

As the route which I intended taking from this point lay along the course of the San Juan river, which frequently winds and turns, and, consequently, must be forded several times to maintain the straight line of march, I determined on taking a *vaquiano*, or guide, who was thoroughly acquainted with the road, and was kindly given one by my friend Caisedo. I also borrowed a tall horse for passing the deeper parts of the river, as being myself considerably over six feet in height, I stood a fair chance, if I rode my mule, of getting my nether garments pretty well saturated. Having taken a nice supply of fresh provisions, and some excellent corn cakes made for us by

the fair *ninas*, we started at noon the fourth day after our arrival at Calingasta, expecting to perform the journey to San Juan in two days at farthest.

On leaving the few cultivated fields about the houses, we struck out towards the river, and forded it in a straight line. It was pretty deep, and I felt the satisfaction of being mounted on a tall horse. The scene which was enacted every time a fording took place was most amusing; the men with the "asses" especially exciting a fair share of laughter, and more than once a little apprehension for their safety. Before encamping for the night, I think we crossed the river five times; the current was in some places very rapid, and it was quite as much as a mule or horse could do to withstand it, or resist being turned over and borne down by its force.

A good camping-ground and firewood were not wanting, and soon after sundown I called a halt. After a capital supper we all turned in, having sent the animals to graze a short dis-

tance off, in charge of two men. The night was so fine I preferred sleeping in the open air, so dispensed with the tent. I don't know how long I may have been asleep, but I was suddenly aroused by a loud shout from one of the sentinels, accompanied by the report of his carbine. In a moment we were all on our feet, rifles in hand, and ready for whatever was coming. I knew there were no Indians in that district, neither were any gauchos of bad character known to have been about; yet a sort of instinctive feeling of caution and doubt caused me to place the men in a position to defend themselves at a moment's notice. I shouted to the sentinel, *Que hai?* (What is the matter?) He responded immediately, asking pardon for alarming us without sufficient cause, for 'twas only a large puma (lion) that bounded across and rather startled him; though it seemed more inclined to retreat than fight, or show any signs of hostility towards us. On searching about we could nowhere find a trace of him; but it instantly occurred to me that the mules might

be in danger, and were probably the cause of his visit to the neighbourhood ; the instinct and scent of the puma being so acute as to detect their presence a considerable distance off.

A minute had scarcely elapsed, when a distant shout up the valley announced that my suspicions were tolerably correct, and that an attack had been made by the *puma* on the mules. Leaving some of the men in charge of the camp, I started off at full speed, accompanied by the remainder, and got up just in time to see a most furious struggle between two pumas and two mules ; the remainder of the troop having scattered and disappeared immediately on the appearance of their most terrible and justly dreaded enemy. The men in charge were vainly endeavouring to frighten off the pumas, or separate the animals ; but were so frightened themselves, that nothing would induce them to approach closer than from twenty to thirty yards : and not being good marksmen, they were afraid to fire lest they might kill the mule instead of the puma. When I arrived,

therefore, I found it would be useless to attempt saving the lives of the poor mules, as they were already not far from being dead ; but, determined to have revenge, I coolly covered the nearest puma, which was about fifteen yards off, fired, and hit him a little below the right ear ; he let go his grip, and rolled over writhing in agony, and howling most fearfully. My men followed my example with respect to the other, and a few minutes sufficed to finally accomplish with the hunting-knife what the rifle bullet had left unfinished. The two mules died, one almost immediately, and the other in the course of the morning ; the first being frightfully torn about the throat, neck and shoulders, and having also received an ill-directed bullet from one of the men.

We skinned our "game," if such it may be called, and carried off the head and claws as trophies. The skin of the largest puma measured about 5 feet from the nose to the root of the tail, and the smaller one about 4½ feet. The jaws are very strongly constructed, and

well adapted for "crunching" bones and tearing flesh; the paws and talons are also very strong and large, the former being about the size of a large man's hand when spread out.

It is most dangerous in the neighbourhood of the Andes to allow mules or horses to wander far from the camping-ground, as they generally fall an easy prey to the wild animals which infest the district. It must be, however, borne in mind that the puma will not attack a man; but, on the contrary, will flee from him, if not immediately in contact or engaged with his prey. The only animal I know capable of resisting successfully the attacks of the puma is the ass; and the two seem perfectly to understand each other, for the former will never attempt the conquest of the latter as long as any other animal is present to prey upon. The ass, unlike the mule or horse, never runs from the puma, but obstinately gets his head down between his fore legs, and keeps up a continuous system of what is commonly known

by riders as "bucking," thereby preventing his enemy from springing on to his neck, or sticking there a sufficient time to insert either his talons or teeth in the throat; which is comparatively protected by his stooping posture. The ass never loses his self-possession, whereas the mule or horse takes fright, knowing by instinct when their enemy is near; the puma, being swifter, soon overtakes his prey, and springing on to the neck, very quickly brings it down by his weight and superior strength.

Our "cabalgado," or troop of mules, were now scattered in every direction, and it required all the tact and camp experience of the gauchos to double on and bring them back. They were fortunate enough to find one or two which took refuge at our camp-fire, and with these galloped after the remainder; all of which, however, they could not find. Some of those found had to carry double in consequence, until we reached a post-house about noon, where we borrowed some five

or six in the name of the Government: these I afterwards had sent back to the owner; much to his astonishment and delight, as he was unaccustomed to such honest treatment in war time.



## CHAPTER XVII.

Bed of the River San Juan—A Short Cut—A Stiff Ascent—Zigzag Track—Dense Mist—Uncomfortable Descent—Brought to a Stand-still—Fissure in the Rock—Fortunate Tumble—We thread the Pass, and lose our Way—Marching in a Circle—Benighted and bogged—Bivouac near a Salt Marsh—An early Start in the Morning Mist—We discern our Position—Find Shelter and Food—Fording the San Juan and its Consequences—Our Companions arrive.

OUR little party kept following the course of the San Juan River, crossing and recrossing almost every hour, and in some places obliged to retrace our steps, owing to the depth of water; we having taken a wrong ford. I believe a very fair carriage road could be made along the bed of this river; but one only practicable during the winter months, when no snow is thawed in the Andes and consequently the stream is considerably less.

We met a party of four gauchos a little after noon, who informed us that a new pass, and a short cut, had been discovered a little distance in advance, by which we might proceed and save several leagues of bad road. I determined to try it, and having obtained the necessary information as to direction, &c., pushed on in advance of the troop, accompanied by the Sub-Inspector and Engineer of Mines, Don Joaquin Godoy, an experienced Chilian Mining Engineer, lately arrived at San Juan: a very excellent companion. I had given orders to the officer in charge of the troop to follow up our trail and cross by the short pass.

I ought to mention that this pass was a zigzag road, or track, across a high range of hills (not mountains), at whose base on the opposite side there was a post-house or cattle station, where we might remain for the night; and at which the gaucho told us we ought to arrive by 4.30 P.M. We trotted on briskly for an hour, enjoying the fine scenery, and occasionally stopping to examine some metalliferous

vein with which the district abounded, when at a short distance ahead we perceived a gaucho driving some cattle before him. On questioning this man concerning the route, I was delighted to find that we had arrived almost at the point where we should turn and commence the ascent of the hill ; the gaucho assuring us that we ought to arrive at the post-house within an hour.

I must say that I thought the pass rather a stiff ascent, seen from below ; but knowing that what appears in the Andes almost impassable, becomes on trial quite easy to ascend, I made no observation in reply to the gaucho's grin of satisfaction as we thanked him, and we walked our animals towards the track barely visible on the shingle. I afterwards discovered the trick that had been played me by this gaucho, and heartily wished to give him his due.

We commenced the ascent about a quarter to four P.M., and at a quarter past four had not yet arrived at the summit ; which, how-

ever, appeared within a stone's throw for the last quarter of an hour. The path was about the steepest I ever ascended on horseback, and I do not exaggerate in saying that in many parts it was an angle of considerably over forty-five degrees: indeed I really thought it impossible for a mule or horse to maintain its equilibrium at such an angle. But the steepness was not the most objectionable feature; for the track was zigzag, upon a "cuchillo," or sharp narrow edge of a small projecting ridge from the main hill; which may be compared to climbing up a knife blade at an equal angle, but instead of your zigzag route being on the flat side of the blade, you are obliged to follow it upon the edge: the reader may imagine what turning space we had at every angle of the road.

At last we *did* arrive at the summit, and on gazing down eastward towards the plains, had a very romantic view of—clouds of vapour; for a thick dense mist was rapidly rising and had enveloped all beneath in fog and mys-

tery: we could neither distinguish the promised haven, the post-house, nor the country around the base of the hill; my companion, as well as myself, being unacquainted with the neighbourhood. At half-past four we commenced the descent, and were soon enveloped in the ascending masses of clouds of mist, which were so thick as to prevent us seeing ten yards around; it was also most penetrating, and soon saturated our light garments, leaving us cold and decidedly uncomfortable.

The descent was not quite so steep as the ascent, but quite bad enough, and the tall brushwood on either side of the track kept slapping in our faces and affording us a continued series of shower-baths gratis. About five P.M. night began to set in, and at half-past five it was perfectly dark. We were still descending, yet still in the clouds, and douched with piercingly cold "dew-drops;" but we could not see the end of that seemingly interminable, horrid, narrow, steep path. I ground my teeth with vexation, and yearned for my



length on my back, on the soft wet sand at the bottom of the fissure. It was only a small step of about two feet down, but not being aware of that fact, I tumbled in, and, luckily for me, fell with the pocket of my coat beneath me; for being disagreeably *impressed* with the fact that it contained a very hard substance, I felt for it, and found, just the thing above all others I wanted at the moment, a *match box* containing large wax matches, which would soon throw some light upon the passage, and also on the dial of my pocket compass. Accordingly I struck a light and proceeded to examine the place.

On the wet sandy bottom I discovered several tracks (my own being the largest and most recent), and concluded that it must have been a pass leading in an easterly direction; which, as far as I could judge, was about the proper course to reach San Juan. I returned to my companion, and having shown the pass by "match" light to my mule, she willingly went through. It was about 100 yards long

and very narrow, and took us on to what I set down as a plain on the other side. Believing ourselves now in the right track, and feeling anxious to reach the post-house, we pushed on at a trot, along a level plain among bushes, as well as we could make out. I began to think it was rather late, and looking at my watch, found, to my horror, it was 10.15 P.M., and still no signs or sounds of a human habitation. What was to be done? Ride on still: of course, there was no better alternative. So on we rode in the drizzle and cold, weary and hungry, straining every nerve and sense to catch the sound of life, whether human or animal: either would have been welcome, to relieve the monotony and loneliness of that miserable nocturnal ride.

Another quarter of an hour passed and still nothing visible; but the night getting a little clearer, we could distinguish something looming in the distance: but it looked too large for a house. On approaching it, it appeared to be another hill, somewhat similar to the last



we left ! But, surely, two hills with fissures precisely similar cannot exist ; and yet it is so, apparently. My companion, who was ahead, soon put me out of suspense ; and a mocking, derisive laugh announced the disagreeable intelligence that we had been "circle sailing" for the last three hours : not having looked at the compass after leaving the pass, we had actually ridden a complete circle and come back to the very spot whence we set out. Again we turned into the proper course, determined now to consult the compass every quarter of an hour ; and, steering east-south-east, as the most direct line according to my travelling map, ride on until we met with some human habitation !


It was now eleven P.M. We fired off our revolvers and whistled, and made other noises to attract attention and make our position known to some chance traveller ; hoping to fall in with our own troop, who had all the provisions, beds, &c., and were no doubt looking for us in every direction. All was in vain : the echoes mocked our hopes, and we deter-

mined to go on till daylight. Twelve o'clock. Still going on, under drizzling rain, and soaked through in every garment; the poor mules were weak and hungry, and eventually mine stopped, and I felt her sinking down forward and make a plunge. I jumped out of the saddle and landed up to my knees in a quagmire, or marsh. My companion, being in the rear, escaped.

On extricating myself and mule, I sat down, and then and there determined to pass the night; or rather, what was left of it. Don Joaquin, however, moved as an amendment, that we should seek a better spot in the immediate vicinity and make a fire to dry ourselves and keep us warm, rather than sit down all night in our wet clothes; so, leading my mule by the bridle, we moved up a little hillock, and found the ground tolerably dry: that is to say, it was not in quite so muddy a state as about the edge of the bog. Having found some old roots of trees, we struck a light, and soon had a good fire blazing up, by the

light of which we could distinguish surrounding objects. The long grass and a peculiar sort of brushwood indicated our proximity to a "salina," or salt marsh, and consequently the absence of potable water. Fortunately I had a drinking-cup and small flask containing some cognac, and in my saddle-bags, I discovered a handful of stale biscuit ; which was most welcome. With this and some water scooped up out of a cow's track on the brink of the marsh (containing about ten per cent. of Epsom salts) mixed with a little cognac, we consoled ourselves for the loss of our supper and dinner ; and we did not consider ourselves so very badly off as we at first concluded we were.

We removed the saddles from off our mules, and made the genuine gaucho's bed of the sheep-skins ; using the saddle itself as a pillow, and fastening our lazos to the mules' necks, to allow them to graze a little. We laid ourselves down by the fireside to snatch a few hours' sleep, holding the ends of the lazos in



our hands, lest the mules might decamp, and leave us to trot home on foot the next day. Several times before morning I was aroused by my mule pulling to get an extra foot or two of lazo, in order to search for fresh pasture ; and each time I replenished the fire. The mist continued the entire night, and towards morning settled into downright rain. At the first dawn of day we were astir, and saddled our mules. Still all around was wrapped in mist and doubt ; we could only determine by the compass what course to pursue, and accordingly set out cold and shivering towards San Juan.

About 8 A.M. the mist began clearing away, and on gaining a slight eminence, we got a fair but distant view of the scene of our night's ride. The hill through which we had passed *twice* was about twelve miles off ; it appeared to be a perfectly isolated ridge standing upon the plain, and at least ten to fifteen miles distant from the range we passed in the evening. Its isolated, or rather circular form,

accounted for our having ridden round it and come a second time to the pass. We gazed about in vain for the hut or post-house, and determined to push on towards some haciendas or farms, which we knew to exist about ten leagues from San Juan, in the direction we were now following.

At 10.30 A.M. we sighted the first human habitation, and in the course of an hour were comfortably seated at a rude table with a steaming dish of *casuela*, and a good piece of *asado* before us; to which I need scarcely say we did ample justice. We could obtain no intelligence of our party, and therefore concluded they had shared a similar fate to ourselves, minus the provisions and beds. The distance to San Juan we found was some seven leagues, and we calculated upon doing it in three to four hours; provided no mishap befel us or the mules.

At noon we started comparatively refreshed, and after half an hour's riding, came again to the river of San Juan, which we unfortu-

nately turned off from' on the previous day. We forded it gallantly ; but I must confess to feeling rather frightened, for here it had increased in width and depth and rapidity to such an extent as to make it anything but pleasant to cross on a small mule already weak and tired : being without a guide, we had no doubt mistaken the crossing and got into deep parts not intended to be forded. The banks on either side were very high and steep, and composed of old red sandstone ; we were obliged, consequently, to keep to the bed of the river, and had to ford it six times before finally leaving it and striking out on the cultivated plain around San Juan. The last crossing was certainly quite sufficient for me, not being a swimmer, and almost decided me never again to attempt it without a good strong horse ; the water came up past my thighs and entered my large riding-boots, or rather that one on the side next the current, and the mule swimming at the same moment, caused me to lose my balance ; I, of course, went over, getting thoroughly ducked,

but scrambled out, holding on to the tail of the mule, causing my companion to laugh heartily: which I considered rather uncharitable under the circumstances. I was obliged, of course, to take off my boots and empty them of the water, and mounted again, at least 20 lb. heavier, to finish that memorable day and night's ride: one of the most miserable of my life.

We arrived at San Juan about four o'clock in the afternoon, having made the journey from Calingasta, in a little more than two days. On inquiring for my companions no intelligence could be had of them, and I concluded that they were either engaged in looking for us or had lost their road as well as ourselves; which latter turned out to be the case, as I subsequently learned from the lieutenant, who arrived a day and a half after us. He had gone away far to the north, missed the post-house, and only got back by falling in with a gaucho whom he forced to conduct his party to the high-road to San Juan.

## CHAPTER XVIII.

Escort for the La Huerta Mines—Festivities at San Juan—

The Author is fêted by the San Juaninos—The Governor Don Domingo Sarmiento—Don Manuel Montt, President of Chili—Scheme of National Education—Character of Sarmiento—Plan of Immigration—Inducements offered to Emigrants—Land and Produce of San Juan—Author's Opinion of European Emigration.

HAVING handed in my report to his Excellency, Governor Sarmiento, and rested a little after the fatigues of my twenty-five days' journey of exploration in Tontal, I begged to have another escort and mules, &c., placed at my disposal to visit the northern district of the province, called La Huerta, adjoining the province of La Rioja on the north, and contiguous to those of Cordova and San Luis on the east. I had been informed that that district contained some valuable argentiferous lead



mines and gold lodes, worked many years before by the Spaniards, and some of which had been reopened, and were producing successfully.

As some 'looting' contractors were reported as being in the neighbourhood of the road, my friend, the *Jeñ de la Policía*, advised me to take every precaution and be on the look-out for the scamps, and to shoot them down without mercy in case of falling in with them; for they were already condemned by the laws, and not in all worldly redemption.

I may here mention, that during the few days I remained in San Juan, it was one continual series of festivities, in honour not only of the anniversary of Independence, but of the important results obtained by me from the ores of Pinaric, which on being published seemed to set the miners all a-cray with delight. Believing that I was the cause of so much pleasure to them, they fêted me in the most extravagant manner; so much so that I was obliged to hurry my departure for La Huerta in order to escape being completely done up by sleep-

less nights and rounds of balls, banquets, and gaieties of every description. I had been called upon to exercise histrionic talent (which I deny the possession of), and a dramatic amateur club was formed, of which the members did me the honour to elect me president. Our first performance came off most creditably; the proceeds being applied to the building of a new school. The foundation stone was laid a few days afterwards, and a preparatory college opened, in an old convent, for advanced students intended for the University of Buenos Ayres. At this ceremony I was obliged to make a speech—my maiden one in Spanish—which I felt was rather deficient in logic, however flowery and eloquent it may have sounded to friendly ears.

I have much to be grateful for, to the San Juaninos; especially their talented and much esteemed Governor, whose efforts to advance civilization and learning, not only in the province but over the entire Republic, are well known and appreciated by his numerous circle

of acquaintances. His Excellency Lieutenant-Colonel Don Domingo Faustino Sarmiento is a self-educated man, who, becoming a victim to political persecution, from his opposition to the retrograde party so long in power in the Argentine Confederation, was obliged to take refuge in the adjoining Republic of Chili; where his talents and energy soon became apparent from his writings in one of the first, and certainly the then most important newspaper in Santiago, the capital.

The enlightened President of Chili, Don Manuel Montt, was one of the first to notice Señor Sarmiento, and encouraged him in his favourite scheme; that of providing a system of national education, to be within the reach of all classes, and by thus educating the people, laying the foundation of a permanent civilization conducive to the well-being not only of the poor benighted lower orders but also of the upper classes, and to the advancement of every branch of industry tending to the development of the resources of the country. Montt was

not a man of half measures, and when once he took up a project carried it through successfully; so it was with education: therefore Sarmiento was despatched to Europe and the United States, to acquire information as to the best system extant.

A few years' residence in Europe and North America were sufficient to give Sarmiento an idea of what would be best suited to the wants of his adopted countrymen in Chili, and he finally returned and established the present very admirable system of national education; which extends all over that republic, and is fast being introduced into the Argentine Confederation; Sarmiento having been Minister of Public Instruction, and Comptroller-General of the Educational Department at Buenos Ayres for many months previous to his elevation to the governorship of San Juan. Foreigners will not fail to appreciate the fact that the Governor of the province of San Juan is thoroughly alive to the advantages of education, and conversant with the most approved forms of

European legislation, and therefore a man in every way adapted to rule liberally and impartially; seeing clearly the advantages of close contact and intercourse with foreigners, and of what incalculable benefit their introduction to the province would be, in setting an example of industry and perseverance to the natives, and creating that most efficient of all incentives to exertion—the spirit of emulation.

He has granted, with consent of the legislature, a large tract of land (about 24,000 acres), for distribution among emigrants, and has authorized the agents of the Government in England to make arrangements for the carrying out of the scheme of emigration to San Juan. He offers from 60 to 150 acres of first-class land to each adult immigrant, who must pay his own passage to Buenos Ayres, or Rosario, the port of disembarkation in the River Plate. The immigrants will be taken charge of on landing, by the agents of the Government, and conveyed to their destination; on arrival at which, a suitable habitation will be provided

for them, and cattle, farming implements, and seed lent them for the first year, to enable them to make a beginning; after which they must rely on their own efforts. They will have to refund to the Government the amount spent in their maintenance and transport from the coast; which is very trifling, provisions being cheap.

The land I can vouch for as being most fertile, and capable of producing up to 200 for 1! But the principal agricultural business in San Juan is the fattening of the winter stock of horned cattle. They are bought on the pampa rather thin, for from 10 dollars to 13 and 14 dollars per head, and are driven to San Juan to be fattened on the rich luxuriant clover and grass produced in the irrigated fields. This is usually done at the beginning of winter (May), and the fattening lasts till the beginning of summer (November); the cattle are then fit to be driven across the Andes, to Chili, where they find a ready and good market: they bring from 30 to 45 dollars per head,

which is more than cent. per cent. profit. As it seldom or never rains at San Juan, it is necessary to irrigate the soil intended for the production of grass or corn crops; but a magnificent supply of water is furnished by the river of San Juan, which winds through the centre of the best land, and is considered (with truth) to possess high fertilizing properties.

I cannot take upon myself to recommend English emigrants to go to San Juan, but were I of that class, I would myself most unhesitatingly prefer to go there rather than to the United States, or Australia. There is one important fact to be taken into consideration, which is that Englishmen, from their industrious, persevering, and thrifty habits, and their superior intelligence, have a great advantage over the natives of those South American countries; and consequently, they can get on much more rapidly than in our own colonies, where they have to contend with their equals, and others far superior in pastoral and agricultural pursuits.

## CHAPTER XIX.

Route to La Huerta—Site of the Mining District—State of the Road—A pseudo Gold Mine—Argentiferous Lead Mines—Santo Domingo Mine—Its Produce—Obsolete and tedious Mode of reducing the Ore—Gold Mining—Fire-clay Stone—Beds of bituminous Coal—Wood plentiful—Poor Ores might be worked on a large Scale—Unexplored Mines—Hares on the Plains.

I SHALL not weary the reader by describing very minutely the route to La Huerta, and will only allude to the road in a practical point of view, for carts or other means of conveying the produce of the mines, either to San Juan or Buenos Ayres ; or, perhaps with less cost a little later, to the contemplated railway station at Cordova, for transmission to Rosario on the river Plate.

La Huerta lies in a north-north-easterly direction from San Juan, and the range of



mountains in which the mines are situate rises abruptly from the plains, stretching away in a north-north-westerly direction until it reaches close to the Great Andes: of which, however, it does not form any part, being separated by an extensive valley running north and south, and so may almost be considered as a semi-isolated range; but this in reality is not the case, for I believe it extends to Bolivia, and joins the celebrated silver regions of Potosi.

The road may be taken in a direct line anywhere almost, as it is nearly level and good hard ground. The distance from San Juan by the track which I took, is forty-five leagues to the nearest mines, situate at a place called "Morado;" but the district is so extensive that for thirty leagues farther north you will not yet have reached the limit of worked mines.

For ten leagues from San Juan along the road the land is fairly cultivated, and numerous "fincas," or farms and farm-houses, are met with; but from that distance during the remainder of the road all is wild and barren, no

water being available for irrigation. Our first day's journey was, therefore, confined to the limit of the last human dwelling, and early the following morning we started, intending to reach a place called Zanjón, the nearest spot where water could be procured for the night. We travelled at a moderate trot, and only reached our destination at 11.30 P.M. The water was most unpalatable, being highly charged with magnesian and sodium salts; but having no other, we drank it cheerfully.

The following morning about 12 A.M. we reached the first mine, situate in a deep *quebrada*, and immediately proceeded to its examination. I found that it had been worked as a gold mine, but was really a quartz vein impregnated with red oxide and blue and green silicate of copper, containing some gold. The veins were well formed and promised fairly: but I set down all the mines in that district as of little importance; for I am a non-believer in gold mines generally as a profitable speculation, and quartz veins in particular.

I proceeded on the following day to the next district, Las Marayos, and there found some most interesting lead veins—all argenti-ferous, and one or two highly so. There were six mines here in operation, but I cannot say that I was impressed favourably with more than one, or perhaps two. I say, perhaps, because one was a new mine just opened; and although the lode was about  $1\frac{1}{2}$  yard wide, well formed, and nearly massive galena, still I cannot say that I considered it a safe mine.

For two days and a half following I visited all the mines of importance in La Huerta district; but only one deserves attention here, as it was the only mine *really* worked and consequently tried. This mine is called La Santo Domingo, and had been worked some years ago, but recently with more vigour, and by one of the few mining capitalists in San Juan. The expenses incurred about the reducing works and offices connected with it are really absurd; money seems to have been lavished thoughtlessly in every direction, and without any apparently

sound or reasonable object. The mine was about 150 yards deep, and wretchedly worked; the roof and sides were almost tumbling in, and no order had been preserved as to the dimensions of the boring, which in some parts scarcely sufficed to admit a man in a stooping posture: on the whole it decidedly required the frequent visits of the inspector to enforce order and regularity. I only refrained from pronouncing it denounceable from the fact that up to that time they were comparatively ignorant of the proper mode of working.

I was glad to see, however, that a disposition to amend was visible; a new working having already been begun—a level, cut into the lode at the base of the hill, and admirably adapted, if properly carried out, to secure a lengthened and prosperous yield of ore. The vein was not very wide, nor constant in its width, varying from half a yard to a yard, but yielding massive galena of a ley perhaps superior to any on record: at least, I have never seen quoted such a result as has been repeatedly obtained by

analysis and assay; some samples yielding as much as 7,200 ounces to the ton, and the average ley of all the ore extracted 800 ounces. Some fine specimens of native silver have been also found in this mine.

The reducing establishment in connection with "La Santo Domingo," is on the old French or German principle, now almost obsolete in Europe for this class of ore; and when I inform the reader that from the day the ore commences to undergo the various operations until the day the product in silver is obtained, as much as two months and twenty-eight days are consumed, he will admit that such a system should be obsolete everywhere in the nineteenth century.

The ore is first broken up small, about the size of peas or beans, and then ground, in an old edge runner, to almost impalpable powder. It is next placed in a *tabique*, or small square space, enclosed by four stone walls four feet high, and alternate layers of charcoal and ore piled up, until it reaches the top of the walls,

when fire is set to it and the first roasting process commences. This continues twenty-four hours, and when the mass is cool, it is again broken up small, ground, and treated in the same way; repeating the process eight to ten times, according to ore. After it has been so roasted, and a certain quantity of the sulphur burnt off, it is placed in a reverberatory furnace of very bad construction, and undergoes another series of roastings; after which it is placed in an upright blast furnace, and the lead reduced or run down with wood charcoal.\* The pigs of argentiferous lead are next cupelled twice, and afterwards refined on a small bone-ash test; the whole process requiring all the time already stated for its completion.

The author offered the proprietors of this establishment the drawings, &c. of a modern lead furnace, and even offered to superintend

\* It must be recollected that the ores of La Santo Domingo are nearly pure galenas, and consequently capable of being reduced to metallic lead without the aid of a blast furnace, or the repeated roastings as practised at La Huerta.

the construction of one ; yet so wedded were they to old customs and habits, and so thoroughly confident in the ability of an old Frenchman, brought there from Cordova at a high salary, that nothing would induce them to depart from or alter their present system. What a contrast to our present English method, by which the same amount of ore of that quality would be got through in twenty-four hours, and the same, or probably much higher, results obtained !

I saw some old gold workings in the neighbourhood ; and although on assaying a sample from one of the veins, I obtained a very satisfactory result, namely, eighteen ounces fine gold to the ton, yet I cannot speak favourably of it. I was shown a mass of stone, which the natives had been in the habit of using as fire-clay, or rather cutting out square blocks of it and constructing small furnaces. It seemed to suit the purpose very well, but what class of stone it is I am not prepared to say, having lost the sample taken for examination. It

resembled our common decomposed Bath stone in colour and hardness.

In the neighbourhood of Las Marayas I found some thin beds of bituminous coal cropping out, and on examination found they extended for a distance of nearly three miles, but of so poor a quality that I question if ever it can be of commercial value. The coal contained 25 per cent. of ash, and about 30 per cent. of volatile matter; but no sulphur. The superabundance of wood in the district, and, in fact, at the mine's mouth, must materially enhance the value of the mines, and makes it a matter for consideration as to the probability of its paying to work up very poor ores on a large scale; the carriage being quite facile and the district easy of access from all quarters.

I am of opinion that much may be done there, as the greater part of the mines are unexplored, and any number of veins may be seen cropping out, which might merit the attention of adventurers. There are several small rivulets coming down the *quebradas* from



great heights, which could be made available as a motive power for machinery, by using the vortex turbine, which requires so small a body of water, provided a sufficient fall is obtainable.

After fifteen days' absence, I returned to San Juan again, without any incident of a peculiarly interesting nature having occurred, beyond the bagging of a few ostriches and one or two capital huanaco hunts. I noticed a species of hare on the plains, which I had never seen before; it resembled our English hare very much, except that it was a little larger and the fore legs much shorter, giving it an awkward gait in running. They were very tame, and I fired at one twice with a small revolver without causing it, apparently, the least alarm; and it only scampered off on the approach of my old friend "Grouse." I was not able to obtain a specimen, but am told they make a capital dish.

## CHAPTER XX.

Author reports to the Government—A Company formed—Is ordered to proceed to Buenos Ayres—Departure from San Juan—Provisions for the Pampas—Coach travelling across the Pampas—Insolence of Conductors—Ruts in the Road—Character of the Country—Vile Hotel—Town and Officials of San Luis—Brutal Murder and Robbery—Author appeals to the Governor—Escape of the Assassins—Deserted Gold-Diggings—Gold Mines of La Carolina—The Great Pampa—A Goat Station—We dine off Kids—Bad Roads and weak Horses—Mail Robbery by Indians—Loneliness of the Pampa.

HAVING completed the tour of inspection of the principal mines in San Juan, I handed to the Government a favourable report. A company was consequently formed for the purpose of buying the ores and reducing on their own account, or reducing and extracting the silver for the owners, charging a percentage upon the quantity extracted. A determination having

been come to with respect to machinery, the staff of men, &c., I was ordered by the governor to proceed to Buenos Ayres, the capital, there to receive further orders from the Supreme National Government to proceed to Europe for the purpose of purchasing the necessary machinery, and securing the services of competent persons to take charge of the establishment.

I was delighted with the prospect of a gallop across the pampas, and enjoying the wild life on those bare and inhospitable plains; for with some jolly companions and a good troop of horses, I had no fears for the result: although rumours had reached us that large parties of Indians had been lately seen hovering about the frontier, and were actually invading the territory through which we had to pass.

On Saturday, the 11th October, 1862, after a round of farewell dinners and parties, and having spent six months in the hospitable province of San Juan, I set out, accompanied by several friends, and a goodly escort,

at twelve o'clock, and turned on to the high road leading to Mendoza, through which city (of ruins) I was destined once more to pass, and gaze for a few hours on the great graveyard of the pampa, perhaps for the last time. But my heart was light, and in no mood for sad thoughts, after so many years' absence from home and friends; and it bounded at the thought of once more beholding the shores of my native land.

Having already given the reader a description of the route from Mendoza to San Juan, I refrain from entering into further particulars, and will merely say that after two and a half days' journey we arrived at Mendoza, and commenced to lay in a stock of provisions for crossing the Great Pampa; where nought but beef, and sometimes not even that, is obtainable.

Every Tuesday a coach, carrying the mails, leaves Mendoza for Rosario, *en route* for Buenos Ayres. Although one may love riding ever so much, still a gallop of 1,000 miles is rather fatiguing; and when one may ride in the coach

occasionally, the rest is acceptable ; I, therefore, secured a seat in the vehicle, also one for my servant, a Frenchman, who was both cook and valet. This coach belongs to the same company as that which plies between Mendoza and San Juan, and the fare charged for an inside seat from the latter place to Rosario is 73 silver dollars (about 14*l.* 12*s.*), each passenger being allowed 50 lbs. of luggage, and all excess to be paid for at the rate of 6 hard dollars for every 25 lbs. This fare does not include living on the road, but the conductor, or guard, will supply each passenger with beef and bread only, for a mere trifle ; say 10 hard dollars.

I would not, however, recommend any one of a delicate constitution to be altogether dependent upon the guard ; but should advise his taking a stock of tea, sugar, coffee, preserved soup and biscuits, and have a fowl cooked at some of the post-houses on the road from time to time, to take cold in the coach, and serve as a luncheon, or more frequently for breakfast ; for very often after starting in

the morning there is no time allowed the passengers to breakfast, consequently it must be eaten as you go along. I need scarcely say that one's bedding, with a knife, fork, and spoon, forms an essential part of the outfit; as frequently it is preferable to sleep in the open air, to being half eaten up with fleas and bugs, which infest nearly all the post-houses.

Another important consideration in crossing the pampas by coach is the class of man who acts as guard, or conductor. I found one a most disagreeable fellow, and was considerably annoyed by his overbearing and uncivil manner; so much so, that I was once on the point of having him severely chastised, and on our arrival at San Juan had him dismissed the service. They give themselves most consequential airs; and as they really have the entire control of the coach during the journey, seem only to seek opportunities to show their authority over the poor postilions and servants, and sometimes even presume to exercise it over the passengers as well. I must say, however, that

the guard who had charge of the coach to Rosario, by which I travelled on the present occasion, was a most obliging and civil man, who had been formerly in a better position, and knew how to conduct himself in a respectful manner; his name was Irene Vega, a native of Mendoza.

Leaving Mendoza, the road to Rosario (the port of embarkation on the River Plate for Buenos Ayres) takes an easterly course, which is very slightly altered the entire way. Post-houses are met with from 4 to 10 leagues apart, but none of any importance occurs until arrival at San Luis, the capital of the adjoining province of that name. The road is tolerably good; but road is a misnomer, for it is only a carriage track, and the longitudinal hollows made by the enormous bullock-waggon, are so deep that the coach cannot possibly be got out of them until some break is met with; thus, should the coach happen to overtake a troop of these ponderous machines, *en route*, it is necessary to follow up in their track at a snail's

pace, probably for hours, until an opportunity offers of getting out of the "huella," as it is called, and passing them by, taking the open country at full gallop.

The country from Mendoza to San Luis is thickly wooded, a large species of acacia, called "algarrobo," being the most abundant tree ; the soil is sandy, dry, and barren (except where artificially irrigated), and water is very scarce. The distance from Mendoza to San Luis is 86 leagues, or 250 English miles, which we accomplished in three days. We put up at one of the most filthy and abominable hotels I have ever had the misfortune to fall in with. It was kept by a Frenchman (as most hotels in South America are), and I certainly felt ashamed of my fellow "European," and his still more slovenly wife. We were condemned to remain one night in this miserable place, owing to the rain which came down in torrents, occasionally changing to hail ; it completely flooded the courtyard of the hotel, and formed small rivers in the streets.



Towards evening it cleared off a little, and I sauntered out to have a look at the town ; this again is a misnomer, and I cannot more expressively describe it than in the words of a Spanish friend who accompanied me : he called it—*El pueblo de las pelucas y ranchas, cuevas, binchucos y chanchos*. Literally—The village of huts with wigs, and caves with bugs and pigs. The miserable huts were thatched with a species of long grass, which, blown about by the wind, resembled so many wigs of long wild hair ; one half of the houses were in ruins, and the other half not much better. The population cannot exceed 5,000, and yet there is a governor, and ministers, and entire staff of officials, with a legislative assembly and a small standing army. A European can scarcely conceive anything more absurd than this, nor would it be one-half so preposterous if the province itself were capable of maintaining all these appendages ; but every month shows a deficit of nearly 4,000 hard dollars, which comes out of the national treasury at Buenos Ayres to uphold

this shadow of a town and phantom of a government.

On returning to the "hotel," I met a person who seemed better dressed and better informed than his compeers, and who evinced a desire to speak with me. On saluting him, as is customary in these countries, he informed me that a most brutal assassination had been committed a few days previously in the "town," and that the unfortunate victim was a countryman of my own. I inquired the particulars of the tragic occurrence, and learned that the poor man was a musician who had lived many years in San Luis, with a wife and large family of children, whom his death left destitute; that he had been much respected as a quiet well-behaved member of society, and was engaged on the night of his death playing at a small ball or evening party. On leaving the house almost in the heart of the town, about two o'clock in the morning, three ruffians attacked and murdered him; mutilating his face and body in a most frightful manner. Their object in killing him was solely to carry

off the few dollars he possessed, together with his clothes. They were prevented from effecting the robbery by the approach of some men, who gave chase and captured two of the ruffians; the third escaping, but not until he was identified as a man of known bad character, and a fugitive from justice for many crimes.

My informant told me that rumours were afloat to the effect that the two assassins were about to be set at liberty, unpunished in any way for the crime they had committed; although one had confessed the particulars of the murder, and swore that the others had struck the blow, he merely looking on, but afterwards assisting in the robbery. On hearing this I immediately donned my uniform and proceeded to the governor's house to have a conversation about the matter, and ascertain the truth of the statement I had just heard. I was most politely received, although not personally known to the governor, and asked him if it were true that he was about to liberate the murderers of my countryman; he

hummed and hawed a good deal, and answered my question *à l'Irlandaise*, by asking me another, which was by what right I came to question him on the matter, or interfere with his jurisdiction. I replied, in the first place, as a British subject *demanding* justice for a murdered fellow-countryman; and, secondly, as a superior officer of the National Government, desirous of seeing crime punished and the laws of the country vindicated from a stain which would inevitably attach itself to them were such malefactors allowed to go unscathed: adding, moreover, that if the law was not allowed to take its course, I would place the matter in the hands of our Minister at Buenos Ayres, who would no doubt see justice done to all parties.

My determination and warmth seemed to have some effect upon him, and after some few minutes he replied most graciously that within two days the two individuals in question would be shot in the Plaza, and hoped that would content me. I expressed my entire satisfaction

if such were done, and hoped that nothing would occur to change his determination ; upon which I took my leave. I afterwards learned that the scoundrels escaped from prison : they may be still at large for all I know to the contrary, and for all the Governor of San Luis probably cares. In no other province of the Republic would such conduct be tolerated ; and if they only took a lesson from San Juan in what concerns speedy justice and prompt indemnification for injuries, they would profit by it.

After passing a most restless night from many causes, but especially the attentions of certain well-known occupants of crevices in bedsteads, and other unmentionable inmates of the damp miserable bedroom of the hotel, we started early the next morning. After leaving the town, we passed one or two small streams, along the banks of which were indications of gold, and several spots marked the locality of "diggings," which, I was informed, at one time paid well in the vicinity, but are no longer

worked. A small range of hills terminates close to San Luis, and runs in a northerly direction for about forty miles : in those hills are the gold mines of La Carolina, which Captain Sir Francis Head describes, but from his report I do not attach much importance to them.

From this point the Great Pampa begins : it is an immense plain, not perfectly flat, as is generally believed, but gently undulating, and covered with long rough grass ; this is burned down once a year, and the young shoots springing up serve as capital pasture for horned cattle and sheep ; of which, however, the former are in greatest abundance.

The first day from San Luis we made but a short journey, arriving only at "Los Cerillos," where two wretched little huts form the "post-house," which is really nothing but a sheep station : or rather, goat station, for at least 1,000 goats were in the *corral* adjoining. The rain still continued, and with difficulty could we get our supper cooked, from the scarcity of firewood and the dampness of every-

thing about: not a twig could be seen across the great plain. I don't know how the poor people manage for fuel to cook the necessaries of life; but suppose the excrement of animals serves the purpose. We were obliged to dine off young goats, which, although tender enough, I must confess I did not fancy much; no scruples were visible, however, on the part of the men, who managed to get through a few dozen kids at least.

For the two succeeding days we were traversing the plain, the great Andes behind us fading gradually away in the background, and the distant snow-capped peaks blending, as it were, with the sky; the tallest of them appearing as mere hillocks above the horizon.

On the third day we arrived at a small village, San José del Morro, and there remained for the night, the horses being very weak and in wretched condition. At one of the posts (I think Rio Quinto) we had fourteen yoked into the coach, together with a number of us on horseback pulling with lazos at the same time;

yet with difficulty could we get it along, from the bad roads and weak horses.

At San José del Morro, we met a coach coming from Rosario, bringing four passengers, one of whom was a friend of mine, and told me he had narrowly escaped being murdered by the Indians about twenty-five leagues from Rosario. He started from Mendoza (being the only passenger), and had reached the above distance from Rosario, when the coach was stopped by a party of fifteen Indians; they plundered the mails and the luggage, he and the conductor were stripped naked, bound, and gagged, and left on the ground. The Indians decamped with the plunder, after having smashed the coach, and taken the remaining horses; for the postilions, on perceiving their dreaded enemy, immediately cut the traces, and fled in the direction of the nearest fort, leaving the passenger and conductor to their fate. The postilions afterwards returned and found my friend and his companion as they had been left by the redskins. Of course they immediately



unbound them, and all returned to Rosario; whence, on the arrival of the other three passengers from Buenos Ayres, they again set out for Mendoza.

This news was not the most agreeable for us; as knowing that a *small* party of Indians rarely if ever come so far into the white man's country, we concluded that a large force must have been in the neighbourhood of the robbery. There was no use, however, in delaying, so we set out the following morning, sending scouts ahead, as we could only depend upon the swiftness of our horses to escape, in case of meeting with a large party. We arrived at night at Las Archires, without having seen a living thing on the plains. I verily believe that if a man wants to find desolation and loneliness, he need only go to the pampa and will there be satisfied.

There was a very decent, clean post-house at this place, which consists only of a few huts in the midst of the pampa. I cannot understand why people live there at all; yet

I saw a French baker and a French barber in it, who appeared quite contented and happy, enjoying their black cutty pipes and never missing an opportunity of glorifying "La belle France."

## CHAPTER XXI.

Arrive at Rio Cuatro—English Cattle Station at Tambito—Neat Hostess, and nice Accommodation—Villa Nueva—General Paunero, Commander of the Argentine Forces—Park-like Scenery—Awful Thunderstorm—Damp Sleeping—A Party of Friars—Precautions against Indians—Cattle driven off by a Band of Indians—Arrive at Rosario—A tedious Journey—Protection against Indians—Indian Cattle-stealers—Town of Rosario—Population, Commerce, Land—Railway between Rosario and Cordova.

FROM Archires, on the following day, we reached the second best town between San Juan and Rosario, Rio Cuatro, or the fourth river ; it is far before San Luis, but not half so fine a town as San Juan. It is situate in the province of Cordova, about thirty leagues to the south of that town. At this point the road branches off northward to Cordova, and our track keeps still eastward to Rosario.

The next day's journey took us to Tambito, a cattle-station and post-house belonging to Messrs. Green, Nicholson and Co., of Liverpool and Buenos Ayres. I was glad to find a countryman in charge, whose neat, tidy little wife made us a nice supper and accommodated me with a capital bedroom; the first civilized one I had slept in for many months.

Another day's journey took us to Villa Nueva (or new town), which was then the head-quarters of the Argentine army, a modern and rather nice sort of place. Here I was presented to General Paunero, the Commander-in-Chief of the forces, a fine old veteran, bearing the stamp of the Spanish soldier of the conquest of America.

From this point the country loses its pampa feature, being wooded very beautifully in patches, and with fine open spaces intervening covered with rich verdant pasture, resembling, on the whole, the grounds around some old English mansion; in fact, at every turning you are deluded into the expectation of seeing a fine house, so civilized is the appearance.

The night of our arrival in Villa Nueva was about one of the most tempestuous I have witnessed on the plains; the atmosphere was very highly charged with electricity, and the sky was almost in one continued blaze of lightning; the rain came down in torrents, and the thunder was loud enough to awe even the savage Indian. Such thunder-storms are frequent on the pampa in the beginning of summer, and sometimes prove fatal to animals and men.

Notwithstanding the rain, we were on the road at dawn the following day, and reached "Las tres Cruces" at seven P.M. Here there were already three large coaches laden with passengers, and every square foot of house-room was taken up; consequently we were obliged to rough it under the coach and on the damp floor. This was all very well until towards morning, when it began to pour down in torrents, and every one had to run for it; so we tumbled headlong into the nearest hut (by-the-by the whole place only consisted of three), much to the astonishment of the

inmates, who were scattered about "all sixes and sevens" on the floor.

I could distinguish in the Babel of voices several "Santo Cristos," and others; which indicated the presence of Italians, and there proved to be at least twenty young "frailes," or Dominican friars, who were being conducted to a new settlement amongst the Indians of the north of Salta. They were quite novices, in every sense of the word, to the rough life of the pampa; and being peaceable men, moreover, they did not show any signs of resistance to our forcible entrée; so as many as liked to make themselves upright did so, and we were permitted to don our garments at leisure. We started at daylight, and arrived without any extraordinary incident at "Las Batones," a fortified post-house, only a short distance from the Indian frontier, and close to where my friend had been robbed.

We found the place deserted, and so took possession, carrying everything except the coach within the walls, and securing the door

for precaution's sake in case of an attack; and we felt certain from the fact of the post having been abandoned that the "redskins" were not far distant: nor were we wrong, as we learned a few days afterwards.

We passed the night perfectly safe, and started the following morning at three o'clock; but we had not been more than two hours gone when 4,000 Indian warriors came up to the post and completely destroyed it, burning down the house and demolishing the breastworks. The scene of destruction was witnessed by a "bombero," or scout, from a distance, who immediately gave the alarm to the nearest force of military. The Government troops went forth to meet the redskins, but too late to prove effective, for the Indians had driven off some 40,000 head of cattle from the province of Cordova, carrying desolation and ruin wherever they passed.

Active measures have recently been taken by the President, General Mitre, to keep back those troublesome customers, who never come save

when they know the frontier to be unguarded ; and from the few severe lessons taught them by General Emilio Mitre, the President's brother, I have no doubt they will be quiet for some time to come. It is, however, really a shame that a civilized and comparatively strong nation as the Argentine Republic is, should allow a handful of savages to invade and destroy their territory. Why, with 500 good riflemen I would engage to drive the whole tribe into the Andes and keep them there—or exterminate them, as the only sure means of being rid of them.

At nine P.M. on the day of our departure from the Batones we arrived at Rosario, the end of that weary, monotonous pampa ride, tired and glad to have a bath and a good dinner at the "Hotel del Universo," a very excellent establishment, and which treated us well. We had been eighteen days doing the journey from San Juan (over 300 leagues), including one day spent at Mendoza ; and were it not for the bad state of the track from rain, &c., and



the bad condition of the poor horses, we ought to have made the distance in fourteen days : if solely on horseback, we might have done it in eleven to twelve days, by cutting across country and avoiding the long round by Mendoza.

We were most fortunate in escaping the Indians, for with our small escort of less than 100 men against 4,000, the odds would decidedly have been against us. Although we might have withstood a day or two's siege within the fort, yet without provisions, or a supply of ammunition, we should have stood but a poor chance. The fort, or stockade, is generally a square space surrounded by a shallow ditch, on the edge of which are planted enormous tall cacti, that from their thorny nature form an impenetrable barrier to the naked Indian's progress ; nearly all the cattle stations and farm-houses are thus protected.

It must be recollected that when the Indians come over the frontier, it is seldom or never with the object of fighting, but for the purpose of driving off all the cattle within their reach.

They convey them across the Andes, to Chili (in the south), where they find a ready market among the Chilian stock-dealers; who thus purchase at one half their value the enormous herds to be seen on their southern estates. The Indian, however, once in possession of his booty, will not relinquish it without a struggle, and will fight bravely even against superior numbers. But after the first grand charge they may be considered useless; for once broken, their long lances are powerless against a good sabre, or even infantry: lately a large number were thus slaughtered by a cavalry regiment from Buenos Ayres—*era justo*.

The town of Rosario of the present day is very different to what it was even ten years ago, and any person who was then acquainted with it would not now recognize it as being the same except its name. It owes its prosperity and advancement not only to the separation of Buenos Ayres from the Confederate provinces (temporary though it was), but to its being the grand central starting point from the River

Plate to the principal towns and provinces of the interior. What ten years ago was a mere village of mud huts, is now raised almost to the rank of a city; the streets are wide, straight, and at right angles to each other, and are lined with rows of fine houses, interspersed with public buildings and offices that would be a credit to any city in Europe.

The population, I believe, exceeds 30,000; but I cannot say with truth, no census having been taken lately. It contains several fine hotels, and the shops and warehouses are superior to many even in Buenos Ayres, and far surpass those of the capital of the province, Santa Fé. There are English, French, and American consuls there; and so important had the commerce become some time ago, that the National Government established an independent custom-house, in order that vessels from European or other ports might enter, discharge, and clear, without reference to Buenos Ayres, or any other place. The land in the vicinity, and for many leagues around the town,

is of first quality for grazing purposes, and has lately increased enormously in value. In the course of a few months, or at farthest a year from the present day, it will be no easy matter to obtain land about Rosario ; for, the projected railroad to Cordova once begun, it will naturally increase in value to such an extent, that present owners will not sell land which *must* produce such a splendid income : the facility of transport for wool, hides, and other produce, making the present lucrative transactions in those commodities doubly so.

It was with much satisfaction that, a few mails ago, I read in the Buenos Ayres papers the contract, signed and entered into by and between the enlightened Prime Minister of the Republic, Dr. Rawson, and the celebrated South American railroad projector, Mr. William Wheelwright, F.R.G.S., for the establishment of railroad communication between Rosario and Cordova, a distance of 250 miles, within five years. Mr. Wheelwright receiving a grant of one square league of land (equivalent to about

1,000,000 acres in all) on both sides of the line for the entire distance, together with a guarantee of 7 per cent. from the Government on the capital sufficient to conclude the work; which is calculated not to exceed 6,000*l.* per mile.\* The day when the first sod of the Cordova and Rosario Railway shall have been turned, will be a glorious one for the Argentine Republic, and justly deserve to be celebrated as the commencement of a new and brilliant era of prosperity.

\* While these pages are going through the press, I have learned that the inauguration of the Rosario and Cordova Railway by the President and Ministers of the Republic has taken place; Mr. Wheelwright guaranteeing to complete the first ten miles at his own cost.

## CHAPTER XXII.

Embark for Buenos Ayres—Width of the River—Bad Landing-place—Imposing Appearance of the City—Its Extent and Population—Public Buildings, Hotels, and Clubs—General Mitre, President of the Republic—His Character and Administration—Sheep Farming extremely profitable—Mr. Hadfield's Statements—Value of Land in Buenos Ayres—Trees not indigenous—The *Onibú*—Rivers—Soil and Produce—Value of Land, Cattle, and Sheep—Labourers' Wages—English Female Servants—Emigration—British Population of La Plata—Religious Toleration—Climate of Buenos Ayres—Caution to Emigrants—Railways—Homeward Voyage—Hint to Tourists.

AT noon on the third day after my arrival at Rosario, I embarked on board the mail steamer *Pavon*, for Buenos Ayres, and arrived *sin novedad* on the following morning at eight. The river, a short distance from Rosario, appears like a sea, and in front of Buenos Ayres can only be compared to the ocean; no land being visible to the eastward from the shore: I am told it is

forty miles across. The shipping and landing accommodation is about the worst possible; large ships being obliged to lie off nine miles distant from the shore, which cannot be even approached in a small boat, but only by getting into carts drawn by two horses in tandem. There are two fine moles, but sometimes the water retires so far from the shore that they become useless.

The appearance which the fine city of Buenos Ayres presents from the river is very imposing and picturesque; its numerous spires and turreted houses, the great dome of the cathedral towering majestically above all the others, and the magnificent theatre of "Colon" standing out in bold relief against the sky, give the place quite a European aspect, causing the stranger to doubt as to whether he is in the Western hemisphere or gazing upon some modern city on the shores of the Mediterranean. On going on shore, however, the delusion is slightly dissipated, as the old part of the town is very inferior to

what from a distance he is led to believe it to be. But modern houses, substantially built and highly ornamented, are fast superseding the old Spanish style of low tile-roofed edifices of the first settlers.

The city contains over 150,000 inhabitants, and covers an immense extent of ground, the houses generally having ample "patios," or court-yards, with corridors, and, consequently, occupying a large space. The "plaza," or principal square, is very pretty and well planted with trees; a species called the "Paradise tree," producing a beautiful large lilac flower, and affording a nice cool, shady promenade for the citizens. The principal buildings surrounding the plaza are the "Cabildo," or municipal offices and police barrack; the cathedral, a fine massive building in the semi-Grecian style of architecture, with the archbishop's palace adjoining; the Colon Theatre (almost equivalent to our Covent Garden in size, and superior in decoration); and the "Recoba Nueva," or new market, a series of shops in bazaar fashion



beneath a colonnade and arches, the central colonnade leading into another smaller plaza in front of the custom-house.

Several fine hotels grace the principal streets and are excellently kept; the prices are moderate, in fact, not so expensive as at a first-class hotel in Paris or London. A new "Bolsa," or Exchange, and three fine Banks, do credit to the commercial community. There are two native Clubs, and one for foreigners, which form capital resorts for bachelors. I was most courteously presented at the "Progreso" and "de los Estrangeros;" and enjoyed many pleasant evenings there during my stay in the city.

On the day after my arrival I presented myself before his Excellency General Mitre, the President of the Republic, and was most graciously received; he invited me to his lady's "*réunion*" the same evening, and during my stay treated me with the greatest hospitality and attention. I was very much struck with him at first sight, he being a very superior man, and in every way calculated to govern a people

who require to be managed with a great deal of tact ; combining conciliatory manners with firm determination in upholding the laws : which, if justly and impartially administered, seldom or never fail to command the respect, and probably the affection, of an advanced and enlightened people. He is a gentleman of thorough education, and possessed of considerable literary and linguistic talent ; and his taste for the fine arts is evidently highly cultivated, judging from his splendid collection of paintings and objects of art, some of which are worthy a place in the first collections in Europe. The entire nation seem contented with their unanimous choice, and I have every hope that his administration will continue, as it has hitherto done, to afford confidence abroad and peace and tranquillity at home ; by putting down the long dominant spirit of revolution, and bestowing prosperity, civilization, and happiness, on a million and a half of people newly emancipated from forty years of tyranny and oppression !

During my stay of nearly two months in Buenos Ayres, I visited some of the best and most important sheep-farms contiguous to that city. The country around is well adapted to this class of grazing, and the enormous numbers of sheep attest the fact. It is a magnificent speculation ; and large fortunes have been made of late years, since the quality of the wool became known and appreciated in Europe. It is calculated that every four years an industrious man may and can double his capital. Land is now becoming scarce in the vicinity of the city, but from fifty to sixty miles off it is comparatively cheap and easily obtainable.

I cannot do better than quote from Mr. Hadfield's small pamphlet on emigration to the River Plate, recently published in Liverpool. He says :—" The growth of sheep-farming is something marvellous, equal at present to 20,000 sheep to the square league ; from zero, a few years back, when the wool was used for fuel, the export of this valuable article from the River Plate now amounts to fifty millions of

pounds weight. Large importations of Rambouillet and Saxony sheep, for improving the weight and quality of the fleece, have also taken place, and the celebrated alpacas are to be found in some of the upper provinces where the climate suits them. On an equally large scale has been the import in Buenos Ayres and Monte Video of valuable breeding stock—cattle and horses to improve the countless breeds that roam over the pampa."

From some friends of mine in Buenos Ayres I learnt a few particulars as to the value of land there: it varies very much, according to proximity to water and to the city itself, and may be bought for 2,300*l.* to 6,000*l.* per square league. At a hundred miles from Buenos Ayres good land may be bought for 1,000*l.* per square league (nine miles), and sometimes much less. I find Mr. Hadfield's prices pretty similar to those quoted; and as he goes on to describe the country around, I shall merely give his words. He says that "for eighteen to twenty leagues from Buenos Ayres, where the country

is a little undulating, the grass is richer and more suitable for sheep ; and as the country is fully stocked, there are plenty of farms, or "estancias," with planting about them ; but in the more distant parts of the province there is very little natural planting. Trees are not indigenous to the province, but willows and poplars grow freely on the banks of many streams. The *ombú*, which is quite soft, like a cabbage, grows to an immense size all over the provinces of La Plata, and it is found a very agreeable shade in the summer time : nearly every house in the country districts have a number of them growing close to them ; but though very agreeable as a shade during the heat of the day, the natives say it is very unwholesome to sleep under them during night.

" There are no large rivers traversing the province ; the Salado, the largest, in winter overflows its banks, rendering it most troublesome for passengers, and has only one bridge across, on the road from Chascomus to Dolores. The soil is very rich, but, if anything, too dry.

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Two crops of potatoes and many other kinds of vegetables are easily raised in the year. Wheat, barley, and maize, all yield a very large return, and the land is never manured.

“Before so many English located themselves in the country districts, cattle-breeding on the estancias of the more wealthy Spaniards was the most profitable; but within the last thirty or thirty-five years sheep-breeding has become the great occupation of all the landed interest about Buenos Ayres: and enormous fortunes have been realized. It is difficult to quote the present value of land, cattle, or sheep, either in Buenos Ayres or Monte Video, as the rise of late years has been very rapid. I know of land not far from Monte Video that in 1855 was offered for 2,000 dollars per square league, was resold, in 1860 at 12,000 dollars, or about 2,000*l.*; and at present (1862) it would be worth much more. Breeding cattle in Buenos Ayres, large and small, are worth from 14*s.* to 20*s.* per head, according to size and distance from town. Oxen for slaughter are worth 35*s.* to 50*s.*;

horses, tame, 30s. to 5l. The principal breed of sheep is the merino kind: picked ewes for breeding are sold at from 6s. to 12s., according to value of the flock they are selected from; but the general run in 1860 was 7s. to 8s. each, yielding 4 lbs. to 5 lbs. of wool, worth at Liverpool, 9d. to 10d. per lb.

“Labouring men have always done well in this country; and as they can save nearly all the wages they earn, a steady man can soon accumulate sufficient to purchase a share in a flock of sheep. The lowest wages for a country labouring man is 2l. per month; but as he becomes more accustomed to the labour and ways of the country, he gets to earn double and treble that sum in four or six months, being, of course, fed and lodged free of any expense to himself. A stout able man, by taking piecework, such as making ditches, &c., will easily earn and save 10l. and 15l. per month: and such men are always employed.

“Emigration is much wanted to this fine country, where labour is so highly paid that

a man cannot help getting on ; if he will only be steady and keep from drink.

“ English house servants in the city are very much wanted. Housemaids never remain long in a situation about town, being soon married. Servants’ wages in towns vary from 2*l.* to 5*l.* per month. I estimate the number of British subjects, principally Irish, in the towns and districts bordering on La Plata, at from 20,000 to 30,000. The bulk of the British population in the country districts is Irish, and there are four or five Catholic priests distributed amongst them. Religious toleration prevails in the widest sense : a striking contrast to the state of things in bigoted old Spain. There is an English episcopal church under charge of the Rev. Mr. Ford ; a Scotch church ; an American, or Methodist, and one German Lutheran ; also a Protestant burial-ground, and a very large and beautifully situated hospital, which is well attended to.

“ The climate of Buenos Ayres is perhaps one of the finest in the world, as even a literal



translation of the name would seem to indicate — ‘Buenos Ayres,’ or ‘good air.’ Captain Page, of the American Navy, in speaking of it in his work on the River Plate, says, ‘It is neither enervating nor severe, and the atmosphere is never laden with miasma.’ What a land of promise to European emigrants !”

The foregoing extracts are, I think, sufficient to show what may be done at Buenos Ayres, and from my personal knowledge I believe the statements in Mr. Hadfield’s pamphlet to be as nearly correct as can be. I would caution intending emigrants, however, against believing implicitly all that is published about the River Plate ; as many will, no doubt, try to make emigration a speculative affair, conducive, if possible, to their own interests, irrespective of results to the poor emigrants. I have read a small book lately published by the Monte Video Government, or at least with their authority, and I must say that I cannot concur with many of the statements therein ; especially that showing the product of an estate in four years.

To describe Buenos Ayres more minutely than I have already done would, I fear, be not only out of place here, but perhaps presumptuous on my part; it has been frequently and much more ably done by others. I will, therefore, conclude my observations upon the subject by stating simply that it is rapidly progressing, and that railways are becoming the order of the day: the first section of the San Fernando line was opened during my stay there. I then had the pleasure of hearing the worthy President of the Republic, and other talented men of high social and political influence and position, express, in eloquent and sincere terms, their high appreciation of foreigners, and the benefits the country was deriving from their advanced and enlightened ideas being introduced and carried out effectively. Since then a new line to the south, Chascomus, has been begun, and a minor one within the precincts of the city; so that when the grand line of all shall have been commenced—Rosario to Cordova—the Argentine Republic will have five

lines of railway to boast of; one being already finished to Mercedes, a distance of about forty miles.

On the 14th December, 1862, I said farewell to Buenos Ayres—or rather *au revoir*—and stepped on board the French mail packet, booked for Bordeaux, *viâ* Monte Video, Rio Janeiro, Bahia, Pernambuco, St. Vincent, and Lisbon. After the most agreeable voyage (of thirty-six days) I have ever made, I once more touched European ground; but only for a short time: for I intend returning, accompanied by the necessary *matériel*, to develop a new industry in the country of my adoption, and have sanguine hopes that my labours will bear fruit.

For those who know not what to do with their time and money, and wish to enjoy a “trip somewhere,” I would recommend them to try that of going to Buenos Ayres, *viâ* Brazil; as the longest space of time which intervenes on the voyage from place to place is seven days, and the packet remains sufficiently long

at each place to admit of the tourist seeing and enjoying the many beauties of a tropical vegetation and climate.

Rio de Janeiro alone is well worthy the attention of the traveller, as possessing the finest and most picturesque bay and harbour in the world ; and there a halt of six days is made by the steamer. Then if the tourist wishes to extend his trip and return by a different route, I would strongly recommend him to gallop over the wild pampa to Mendoza, and visit that interesting pile of ruins. If he should come on to San Juan and our mining districts, the author will have much pleasure in making his acquaintance, and treating him to a good ostrich chase, or perhaps a huanaco hunt ; not, however, guaranteeing the safety of the rider's neck. After which he may scramble across the great Cordillera of the Andes, and drop into Chili without any difficulty : there he may take the steamer on the Pacific, and have a peep at Bolivia, Peru, with its romantic Lima, Ecuador, New Granada. Then, jumping into

the railway train at Panama, he can shoot across the Isthmus, embark at Chagres for Southampton, *via* the West Indies ; arriving safely in Old England, he will be nothing the worse, and all the wiser, for having crossed the entire continent of South America and made himself acquainted with a country comparatively little known or explored.

THE END.

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